



CHIQUITA CANYON
A Waste Connections Company

ETLF Operations HASP

Chiquita Canyon ETLF Response
Castaic, California

July 3, 2024
Version 2.1

Required Approval			
Incident Commander (signature)	David Matthews <i>David Matthews</i>	Date	7/5/2024
CCL District Manager: (signature)	Steve Cassulo <i>Steven J Cassulo</i>	Date:	7/3/24
CCL Assistant District Manager: (signature)	Nicole Ward <i>Nicole Ward</i>	Date:	7/5/2024

Emergency Contact Information

Chiquita Canyon Landfill	
Site Address:	29201 Henry Mayo Drive, Castaic, CA 91384
Site Emergency Contact:	Steve Cassulo (661) 371 - 9214
Alternate Site Contact:	Nicole Ward (661) 425 - 4619
Chiquita Canyon Landfill	
Local Emergency Response:	911
Medical Facility:	Henry Mayo Newhall Hospital (661) 200 - 2000
Medical Facility Address:	Henry Mayo Newhall Hospital, 23845 McBean Parkway, Valencia, CA 91355

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1.0 Introduction

Chiquita Canyon, LLC’s (“CCL”) priority is the protection of human health, safety, and the environment. This plan identifies potential hazards to the extent possible based on available information at the Chiquita Canyon Landfill (the Landfill) located at 29201 Henry Mayo Drive, Castaic, CA 91384, and describes precautions that workers need to follow for all activities while in Elevated Temperature Landfill (ETLF) operation areas. The ETLF operation areas of the Landfill are defined as areas of the Landfill affected by the ETLF reaction (Appendix B at the end of this plan), surrounding ETLF support areas (e.g., laydown yards), associated leachate collection/storage tanks, and leachate tank farms.

This plan is a living document that will be updated as conditions change, new information becomes available, and as the ETLF operation area evolves. Updates made to this plan will be documented and provided to ETLF operation area workers during safety briefings.

Table 1 Project Organization

Project Role	Name	Company	Phone Number
CCL ETLF Project Team Leader	Dave Matthews	CCL	(330) 635-4885
CCL District Manager	Steve Cassulo	CCL	(661) 371-9214
CCL Assistant District Manager	Nicole Ward	CCL	(661) 425-4619

1.1 Scope of Work

In the ETLF operation areas, the potential hazards described herein have been identified. All work conducted in these areas performed by any CCL employees or contractors shall follow the protocols outlined here in and all applicable safety plans for the ETLF operation areas and the Landfill. Work performed in the ETLF operation areas will also conform to CCL’s Injury and Illness Prevention Program (IIPP) as mandated by California Senate Bill 198 and Enforced by Cal-OSHA under the General Industry Safety Orders Section 3203.

1.2 Amendments to the ETLF Operation Areas Health and Safety Plan

This Health and Safety Plan is based on information available at the time of preparation. Unexpected conditions may arise which necessitate changes to this plan. Unplanned activities and/or changes in the hazard status should initiate a review of major changes in this plan. Amendments must be approved by the incident management team prior to implementation.

All notes, documentation, and records must NOT be discarded after their use. Documents are to be submitted to designated personnel for record retention.

2.0 Code of Safe Practices

This plan was developed for CCL and their contractors working within the ETLF operation area and provides area-specific procedures to prevent incidents at the Landfill. Beyond these documents, addressing worker health and safety within the ETLF operation areas, is an ongoing process that involves hazard identification, hazard analysis, hazard control, hazard re-evaluation, and the participation and training of ETLF operation area personnel.

The active involvement of every employee is encouraged through hazard reviews and regularly scheduled safety briefings (e.g., toolbox meetings, tailgate meetings, etc.). Contractors and individual work groups are responsible for holding safety meetings or attending ETLF Operation Area safety meetings if not conducting their own. The supervisor or designee of a work group will conduct the safety briefing. Employee involvement is the cornerstone of incident prevention. Additionally, every employee is required to look out for their coworkers when they do not seem focused on the work at hand, and to adhere to the following principles.

- Do not dismiss the importance of situational awareness and the practice of good common sense when working in the ETLF Operation Area. Be consistent and take personal responsibility for your own safety and those you work with.
- Be aware of the dangers with each task being worked on. Remember and follow safety procedures and safe work practices developed to protect us. Wear the proper Personal Protective Equipment (PPE), do not take short cuts, and do not become complacent or let your guard down by developing a false sense of security while at work.
- There are a number of planning processes that take place prior to the execution of a given task, including job hazard analysis, that must be completed by the worker or work group.
- Supervisory personnel or safety representatives will conduct visual work area inspections, which are intended to verify that established plans and procedures are followed, changes in conditions are identified, the effectiveness of controls is assessed, and new hazards are identified and communicated to all employees.

Contracts for operation, maintenance, monitoring, and construction activities for various environmental control systems within the ETLF Operation Area will include a requirement that safety procedures, as set forth in this plan, Landfill health and safety plans, and the Contractor's health and safety plans will be followed by those involved in the work. CCL is committed to providing a healthy and safe work environment for everyone conducting work activities at the Landfill.

2.1 Contractor Management

It is the policy of CCL to select, contract with, and oversee contractors with the same priority and emphasis on safety that we practice with our employees. Contractors are contractually obligated to comply with CCL, state and federal health and safety regulations. The purpose of the contractor safety management program is to verify that CCL continues to improve contractor health, safety, and environmental performance, and to establish a standard for evaluation/selection and development of our contractors.

This program applies to any contractor that has a contractual relationship with CCL at the Landfill. General requirements for contractor selection and involvement at the Landfill are provided herein.

2.2 Contractor Selection and Approval Requirements

CCL will obtain prequalification submittals (e.g., health and safety plan)) from qualified candidates for each contract. A safety review of the contractors will be performed by CCL Management. The scope of the review will be commensurate with the hazards and risk exposure involved, and a determination will be made as to whether or not the contractor's safety program meets or exceeds CCL's safety program. The selected contractor will be required to conform to CCL's health and safety programs for work performed at the Landfill and the ETLF Operation Area. If a contractor's safety program is deemed insufficient or has a "Not Qualified" safety status, it will not be utilized by CCL at the Landfill.

Contractors will be required to follow or implement the work practices and systems described below while performing work related to the ETLF operation areas:

- The contractor safety program must meet or exceed the CCL safety program.
- CCL management will conduct periodic safety surveys of contractors. Safety discrepancy observations will be reported to the appropriate contractor representative for immediate correction.
- There is a requirement for each contractor to use/provide and maintain their own safety program (job hazard analysis, inspections, operating procedures, safety standards) in addition to the CCL program. The safety program must be readily available for review by ETLF operation area personnel.
- Attend a ETLF operation area orientation and pre-job kick-off meeting provided by CCL prior to any work beginning.
- Participate in regularly scheduled safety meetings.

- Verify that personnel have the required training and competency for their work.
- Comply with the CCL permit process for high-hazard work, including hot work and confined space entry.
- Report all injuries, spills or releases and property damage incidents immediately to CCL and site safety.
- Comply with safety rules, including speed limits.
- Conduct equipment inspections.
- Wear the required PPE.

3.0 ETLF Operation Area Emergency Response Plan (EAP)

CCL will oversee the management of the ETLF Operation Area Emergency Response Plan procedures within the landfill by implementing the CCL Emergency Response Plan. Initial Emergency Response Plan procedures within the ETLF operation areas are provided within this section. These procedures will be implemented at the ETLF operation areas whenever there is an imminent or actual emergency situation and CCL will notify personnel by radio, telephone, horn or other notification system. An air horn positioned within the landfill will serve as the primary notification, with other methods employed if needed based on a specific work task. An air horn alert will be one of two types:

1. **EVACUATION:** Three short blasts three times will signal an evacuation of the landfill.
2. **STOP WORK:** One long blast will signal landfill wide stop work. All workers will remain in place until notified further.

CCL employees and contractors must evacuate the ETLF operation area when an emergency occurs in accordance with the Landfill's Emergency Response Plan or any ETLF operation area specific instructions. When an evacuation is ordered, CCL employees and contractors will gather at designated evacuation muster points.

This is an active landfill. Access and bench roads on the Landfill can and will change to accommodate work areas, waste disposal and working face areas. This may require different routes for traveling to the main office muster point. CCL employees and contractors will verify that they know how to quickly and safely depart and leave the ETLF operation Area.

Personnel entering/exiting the ETLF operation areas must be accounted for via QR code or other method to assist with accountability ETLF operation areas in the event of an emergency. At the muster point (or alternate gathering point) the CCL manager or contractor supervisor will account for personnel under their authority.

Any injury or illness must be reported, as soon as it is safe to do so, to a CCL site representative, and the onsite safety representative. The CCL site representative and the onsite safety representative, in the case of an injury or suspected injury (even if it is perceived as minor), will notify the Incident Commander as soon as practical (see Emergency Telephone Numbers on the cover). If the incident is serious (i.e., fatality, amputation, work-related inpatient hospitalization, or loss of an eye, or any serious degree of permanent disfigurement), notify the Incident Commander immediately. The Incident Commander will notify the District Manager's office and implement the landfill EAP.

Equipment involved in serious-injury accidents should not be moved until the CCL Canyon Incident Commander can inspect the accident scene. However, equipment may be moved if doing so is necessary to remove victims or prevent further equipment damage.

If CCL determines that the ETLF operation area and/or the landfill has had a release, fire, or explosion that could threaten human health, the District Manager or alternates will call **9-1-1** and contact the Los Angeles Fire and Sheriff's Departments immediately. The Incident Commander and/or District Manager or alternates will coordinate with local agencies to determine if a local evacuation is necessary and implement the landfill Emergency Response Plan.

After the emergency is over, CCL will provide for the cleanup, treatment, storage, and disposal of the recovered waste, liquid and affected soils and water. Solid waste, such as affected soil and sorbent pads, will be placed in a roll-off bin for profiling and disposal at an off-site treatment, storage, and disposal facility. Based on the results of the profiling, disposal onsite may be possible.

3.1 Medical Facility Contact and Location Information

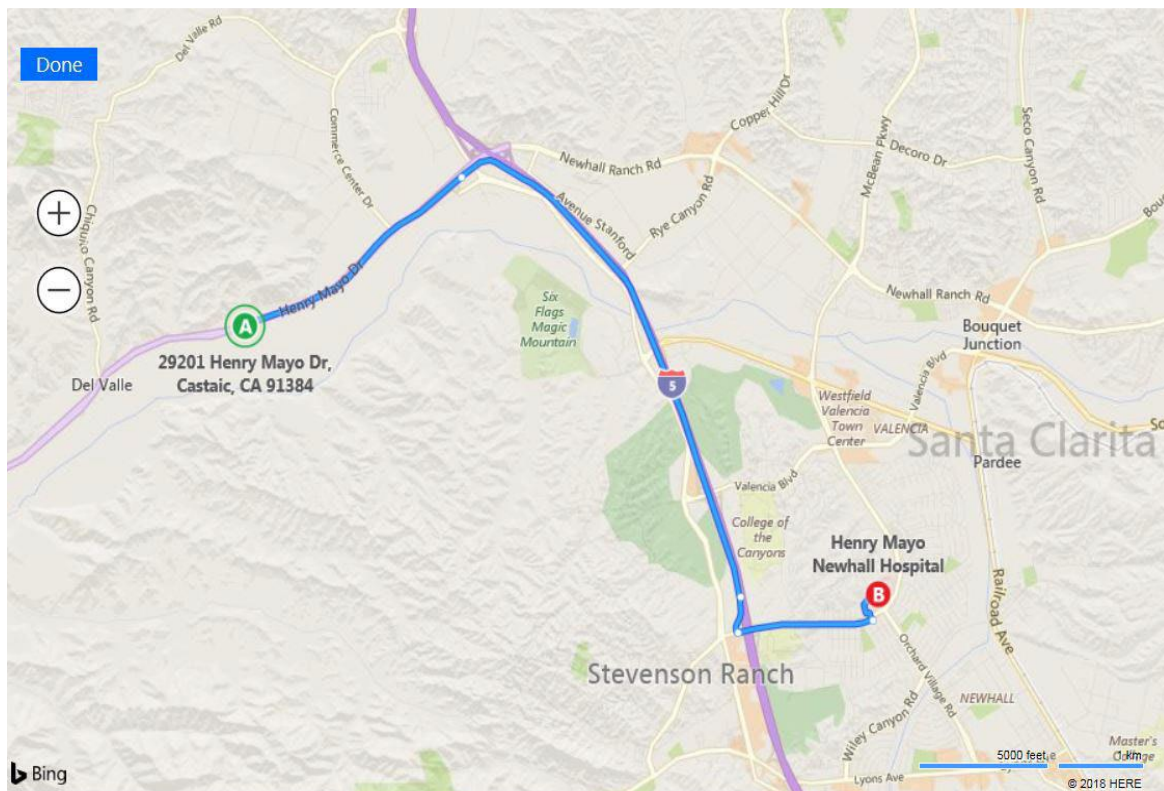
The nearest medical facility is located at the Henry Mayo Newhall Hospital 23845 McBean Parkway, Valencia, CA 91355.

Figure 1. Map and Directions to Nearest Medical Facility

A 29201 Henry Mayo Dr, Castaic, CA 91384

↑	1. Depart CA-126 / Henry Mayo Dr toward Wolcott Way	2.0 mi
🛣️	2. Take ramp right for I-5 South toward Los Angeles ▲ Moderate Congestion	4.0 mi
➡️	3. At exit 168 , take ramp right for McBean Pkwy toward California Institute of the Arts / Hospital	0.3 mi
↙️	4. Bear left onto McBean Pkwy	1.0 mi
↩️	5. Turn left onto road	262 ft
↩️	6. Turn left onto road	0.2 mi
➡️	7. Turn right onto road	161 ft
	8. Arrive on the left	

B Henry Mayo Newhall Hospital



3.2 Employee Alarm System

If an incident or emergency occurs requiring an alarm. Employees or contractors may initiate an alarm by calling one or more of the site emergency contacts on the second page of this document. Call 911, as appropriate, to report fires and other emergencies.

3.3 Rescue and First Aid

Stop and/or suspend work when an injury, accident or a site condition that is deemed unsafe occurs. CCL employees and contractors are encouraged to raise any safety concerns with the site safety representative in a timely manner and to suspend work if they feel conditions have become unsafe.

First aid will be provided on a voluntary basis within the scope of the provider's training. First aid kits and fire extinguishers are available in each CCL work truck. Automated External Defibrillators (AEDs) are located in the office and maintenance office.

Safety showers and eyewashes (portable) are located throughout the facility where splash and chemical exposure to leachate and other chemical exposures may occur.

4.0 ETLF Operation Area Hazards

The primary hazards associated with the ETLF Operation Area are related to the elevated temperatures and pressures that are present, the occurrence of rapid waste decomposition and settlement, worker exposure to leachate, and leachate vapors. As a safety practice, a buddy system, or regular check-ins, will be used for personnel working in the ETLF Operation Area or for after-hours work within the ETLF Operation Area.

No drinking alcohol or use of illegal drugs will be allowed in ETLF operation areas. Anyone reporting to work under the influence of alcohol and/or illegal drugs will be subject to disciplinary action, which may include immediate discharge. Any person bringing illegal drugs onto CCL premises will be subject to immediate discharge. Employees under a physician's care and/or taking prescribed narcotics must notify the Project Manager, the safety representative, or their supervisor.

Eating, drinking, with the exception of water or other hydrating drinks (e.g., Gatorade), smoking is not allowed in the ETLF Operation Area. Within the ETLF operation areas, locations where adequate sanitation can be maintained will be provided.

No horseplay or practical jokes are permitted while working ETLF operation areas.

4.1 Chemical Hazards

The following chemical hazards should be considered before performing any task or work at the Landfill. The analysis will depend on a thorough understanding of the ETLF Operation Areas physical

and chemical characteristics, and the task(s) being performed. When handling or in proximity to liquid chemicals or vapors, additional PPE (e.g., glasses and face shield) may be required. See the CCL Canyon Landfill Personal Protective Program for more information.

4.1.1 Unidentified Chemical Hazards

The disposal of residential and commercial waste results in the creation of potential chemical hazards that may not be possible to identify during work activities. Residential and commercial waste may include containers which are partially full, or contain residues, of discarded chemicals, biohazards, flammable materials, and other hazards that, while not willingly accepted by CCL, may have been improperly discarded in received waste. Labels on these containers may have degraded or been removed, and the contents may leak. Generally, these items will be covered by soil or other barrier, but certain activities such as drilling or digging may uncover these hazards. Avoid interaction with unidentified containers and standing liquids to reduce exposure risk posed by these substances and contact CCL with any concerns prior to proceeding with work.

4.1.2 Landfill Gas

Landfill gas (LFG) varies from one area to another. LFG consists primarily of methane (about 55 percent) and carbon dioxide (about 45 percent). Other components that may be present include water vapor, nitrogen, carbon monoxide, hydrogen sulfide, and other toxic compounds. LFG is flammable and potentially explosive. LFG gas within the ETLF Operation area may contain elevated concentrations of hydrogen.

4.1.3 Elevated Hydrogen

As mentioned, LFG from the ETLF operation areas may have an elevated hydrogen content. When working near LFG, flammability must be monitored to reduce the risk of explosion.

4.1.4 Methane

Methane gas is produced at landfills from the decomposition of waste. Methane is a colorless, odorless, flammable, and potentially explosive gas. The flammable range of methane is 5 to 15 percent by volume. Methane is a simple asphyxiant as it is capable of displacing oxygen. Personnel must wear a 5-Gas monitor when working in any area where gas may be present.

4.1.5 Hydrogen Sulfide (H₂S)

Hydrogen sulfide is colorless with a strong “rotten egg” odor which can diminish over time due to nasal fatigue.¹ As a result, odor is not an appropriate warning property for the presence of hydrogen sulfide. Hydrogen sulfide is highly flammable, acts directly on the nervous system and can result in death or permanent injury following short exposure to quantities near the Immediately Dangerous to

¹ The ability to smell hydrogen sulfide returns following removal from the source of exposure.

Life or Health (IDLH) of 100 ppm. The concentration of hydrogen sulfide varies by area but may be present up to 200 parts per million (ppm), which exceeds the IDLH concentration of 100 ppm. Hydrogen sulfide can accumulate in low areas such as sumps, holes, ditches, or depressions. Hydrogen sulfide is a primary hazard in confined space entry and tank headspaces, and other areas where leachate may be confined. Personnel must wear their 5-Gas monitor when working in any area where hydrogen sulfide gas may be expected to present a hazard.

4.1.6 Benzene

Benzene is a known human carcinogen and can result in detrimental effects to the blood-forming (hematopoietic) system during prolonged exposures. Benzene is present in leachate vapor and is a minor component (< 0.1 % by weight) of leachate and may represent an increased hazard when total VOCs increase, particularly when total VOCs are greater than the site action level in Table 2. When leachate is confined in a tank, pipe, or other enclosed space benzene vapor concentrations may be present within the enclosed space at concentrations above occupational exposure limits. During and following drilling of well boreholes in or near the reaction area, benzene vapor may be emitted into the vicinity until final well completion at concentrations greater than the Cal/OSHA Short Term Exposure Limit of 5 ppm. Work should be conducted in accordance with all applicable requirements of Cal/OSHA Title 8 § 5218 – Benzene when benzene may be present greater than occupational exposure limits.

4.1.7 Hydrogen Peroxide

The hazards associated with the use of hydrogen peroxide (especially highly concentrated solutions) are well documented. Peroxide reactions can be exothermic and generate high temperatures. Contamination of concentrated peroxide causes the possibility of an explosion. Readily oxidizable materials or alkaline substances containing heavy metals may react violently. Solvents (acetone, ethanol, glycerol) will detonate on a mixture with peroxide of over 30% concentration, the violence increasing with concentration. Concentrated peroxide may decompose violently in contact with iron, copper, chromium, most other metals or their salts, and dust (which frequently contain rust). Mixtures of alcohols with concentrated sulfuric acid and strong hydrogen peroxide can cause explosions. Mixtures of ethyl alcohol with concentrated hydrogen peroxide form powerful explosives. Consult the Safety Data Sheet (SDS) in Appendix C for additional information.

4.1.8 Leachate/LFG Condensate

Leachate is any liquid that has come in contact with waste. Once liquid percolates through waste, it reacts with the products of decomposition, chemicals, and other materials to produce leachate. LFG condensate is produced when LFG cools and moisture condenses from the vapor phase to the liquid phase. Risks from waste leachate and condensate are due to its high organic contaminant concentrations and high ammonia nitrogen. Some of these compounds may cause damage to skin and eyes on contact, be absorbed through the skin, or be carcinogenic. Leachate from the reaction

area is known to contain carcinogenic chemicals such as benzene and other organic compounds, metals such as arsenic, and other hazardous organic and inorganic compounds. Methane and hydrogen sulfide may also be dissolved in the leachate or condensate and could pose a hazard in poorly ventilated areas. Bacteria and other microorganisms may be present in leachate which could result in infection of open wounds or other illness.

Workers should avoid direct contact with leachate and condensate. Where there is a risk of splashing, spilling, or spraying of leachate or condensate, appropriate measures should be taken to avoid contact with skin and eyes. If skin contact occurs, rinse with copious amounts of water for at least 15 minutes. Remove any contaminated clothing and discard. The portable eye wash station has a movable shower head to allow for rinsing for 15 minutes. Workers should verify that contaminated PPE and clothing are properly decontaminated and/or disposed and should avoid contact with those items. Consult with site safety.

4.1.9 Volatile Organic Compounds (VOCs)

Volatile Organic Compounds (VOCs) are a broad class of chemicals which are contained in leachate and leachate vapor. The health effects and occupational exposure limits for these compounds vary by the individual chemicals within the mixture and may present a relatively low hazard (e.g., isopropyl alcohol) or a higher hazard (e.g., benzene). Due to the complex mixture of VOCs in leachate vapor, the probability that transient short-term adverse health effects will develop such as dizziness, nausea, headaches, and other symptoms increases as VOC concentrations increase. When measuring these compounds as total VOCs it can be difficult to identify the quantity of a specific hazardous component in the field without more specialized equipment than a 5-gas meter. While there is no established exposure limit for the mixture of VOCs in leachate vapor at CCL, analysis of VOC mixture has been conducted and action levels in Table 3 for VOCs has been established to reduce the probability that exposure limits for individual components of the VOC mixture would be exceeded.

4.1.10 Caustic Soda (Sodium Hydroxide)

Caustic soda is a sodium hydroxide solution which is strongly basic. Sodium hydroxide reacts rapidly and exothermically with organic and inorganic acids, with organic and inorganic acid anhydrides, including oxides of nonmetals such as sulfur dioxide, sulfur trioxide, phosphorus trioxide, phosphorus pentoxide, and with organic and inorganic acid chlorides. Reaction with aluminum and zinc may produce hydrogen, a flammable gas. May initiate polymerization in polymerizable organic materials: a violent polymerization results. Contact can cause severe burns to eyes, skin, and mucous membranes. Use of appropriate chemical protective clothing, gloves, goggles and/or face shield are required when handling to protect skin and eyes. The solution must be handled in a manner that minimizes opportunity for spills, splashes, and pressurized release.

4.2 Physical Hazards

The following physical hazards should be considered before performing any task or work at the landfill by all employees and contractors in collaboration with site safety. Depending on the task(s) being performed, any or all these hazards may be present.

The high temperature and pressures increase the potential for hazardous conditions within the ETLF Operation Area. Personnel should carefully evaluate tasks to be performed to identify which hazards are present and which protective measures should be undertaken or in place.

WARNING: The potential for burns to the eyes, face, and hands, or the unexpected release of pressurized and hot gas or liquids, is a primary and ongoing consideration. The following items below should be addressed when working in the ETLF Operation Area.

4.2.1 High Temperature Gas

In addition to potential inhalation hazards normally associated with Landfill Gas (LFG), the ETLF Operation Area contains LFG with temperatures (>63 °C [145 °F]) that are much higher than normal. This hot gas presents a potential burn and/or scald hazard. Caution should be taken to avoid close proximity to pipes and valves that may release hot gas. LFG should be collected via system vacuum, when possible, to reduce or remove the hazard. Closing wells and allowing pressure to build can be detrimental to the exothermic ETLF Operation, and the removal of vacuum and introduction of pressure can actually provide a trigger, allowing the ETLF Operation to grow and temperatures to climb. When possible, LFG should be shut off or isolated to reduce or remove the hazard when conducting activities in the ETLF Operation Area. Venting should be avoided, as odors are typically a concern at the ETLF Operation Area.

4.2.2 High Temperature Liquid

Hot liquids (>63 °C [145 °F]) are also present in the ETLF Operation Area. Hot leachate presents a potential burn and/or scald hazard and has the potential to cause exposure to chemical constituents. Caution should be taken to avoid close proximity to pipes and valves that could release hot liquids. Leachate and LFG condensate should be shut off and drained, when conducting operations on pipes and wells within the ETLF Operation Area. In addition to high temperature, the ETLF Operation Area liquids may typically have elevated Biological and/or Chemical Oxygen Demand constituents, and the liquids may become more acidic (<6). Total Suspended Solids (TSS) may also increase, making the liquids more conducive to electricity. Some organic compounds may have highly elevated conductivity.

4.2.3 High Gas Pressure and Flow

Gas or liquids in LFG wells, sumps or piping systems can pose hazards related to the presence of higher pressures, flammable liquids/vapors. Any well, sump or conveyance line that has the potential to contain these hazards must be carefully evaluated before performing work. Do not open a well or pipe without following the safety procedures outlined in the applicable job hazard analysis or work plan. Because it may not be feasible to purge wells and piping of all flammable vapors or liquids, the applicable job hazard analysis or work plan must include documented procedures and the special equipment that is necessary to provide effective protection for workers. Air monitoring with a 5-gas meter should be conducted during these tasks. Any hot work (e.g., cutting/grinding/drilling) must be conducted under a hot work permit which includes monitoring for flammability. The presence of flammable gas or liquid presents additional hazards from fire, explosion, and increased temperatures.

4.2.4 Ground Subsidence (Settlement)

The subsidence or settlement of waste at the ETLF Operation Area must be closely monitored. Due to the rapid nature of the anaerobic decomposition associated with the ETLF Operation, large areas of subsidence are typical. Changes in grade due to subsidence may cause failure of installed conveyance systems such as gas collection or leachate piping. Some of these conditions may be visible from the surface, while others occur out of sight (below grade). When walking or driving across the surface of the ETLF Operation Area, personnel should always pay close attention, as underground voids or soft spots may be present and collapse which may cause vehicles to become stuck or represent a slip, trip, or fall hazard. In some cases, collapses may result in an individual becoming entrapped. When driving vehicles, or walking, stay on established roads whenever possible. If working out of sight of other workers, a buddy system must be used, or communication with regular check-ins.

4.2.5 Weather

Personnel should always maintain situational awareness of changing weather conditions. Additionally, a safety briefing should occur among workers if weather may present a hazard for work operations. The current weather for the Landfill can be accessed via the QR code below or other weather reporting system:



[Link to current weather](#)

The danger of lightning strikes increases when work occurs on the elevated surface of a landfill. Lightning can strike miles ahead of a storm when no rain is present. When a lightning strike is detected within 10-miles of the work area a 30-minute standdown will occur. The standdown will remain in effect until 30-minutes after the last detected lightning strike in a 10-miles radius of the work site. All personnel should seek shelter off the elevated surface of the landfill and remain inside a building (primary) or vehicle (secondary) until the danger passes. Do not take shelter near tall objects such as power lines, trees, antennas, or flare stacks.

4.2.6 *Thermal Stress*

Thermal stress (heat stress or cold stress) hazards and strategies for mitigating impact on worker safety and health can be addressed based on information obtained in the OSHA-NIOSH Heat App.

Workers who are exposed to extreme heat or work in hot environments may be at risk of heat stress. Exposure to extreme heat can result in occupational illnesses and injuries. Heat stress can result in heat stroke, heat exhaustion, heat cramps, or heat rashes. Heat can also increase the risk of injuries in workers as it may result in sweaty palms, fogged-up safety glasses, and dizziness. When temperatures exceed 80°F and 95°F additional heat stress management actions are required by Cal/OSHA [Title 8 § 3395](#).

In winter weather conditions, there is a potential for injury from cold, including dehydration, frost-bite, heavy shivering, excessive fatigue, drowsiness, irritability, and euphoria. If workers show these symptoms, work must cease and affected personnel must rest in heated buildings or vehicles.

Supervisors or work team lead will be aware of weather conditions predicted for their shift, monitor conditions throughout the day, and consult the appropriate heat and cold stress management plan for additional details when necessary.

4.2.7 *Vehicular Hazards*

The maximum speed within the ETLF Operation Area and on the Landfill is 9 mph. Speed should be adjusted downward according to conditions, and all posted traffic control signs obeyed.

Be cautious of all motor vehicles. As a pedestrian, look 360° before walking to identify any moving vehicles in your nearby vicinity. Personnel must wear reflective safety gear as the outermost layer of clothing in ETLF operation areas, day or night.

Personnel are not permitted to operate a motor vehicle without seatbelts being properly worn. When operating a motor vehicle, look both ways before entering a roadway or crossing intersections. Look for pedestrians on or near roadways. Do not email or text while operating a motor vehicle. Driving at dusk and dawn or low light conditions decrease driver visibility and be aware that animals are much more active during these times. Driving on wet, snowy, gravel, or dirt roads warrant operation of the

vehicle at a conservative speed. Not all gravel road crossings are controlled crossings; some do not have stop signs. Drivers should follow posted speed limits of 9 miles per hour (MPH). Personnel must abide by client guidelines regarding driving while using cell phones. Under no circumstances are personnel permitted to text or email while driving. Personnel should pull over safely, away from traffic, to conduct cell phone or radio communications. Once you have secured your seatbelt, please adjust your window and driver mirrors. Do not block windows with contents such that your view is obstructed while driving.

Heavy Equipment: excavators, bulldozers, dump trucks, vacuum trucks, commercial pickup trucks, and other heavy machinery may be present at the Landfill or the ETFL operation areas during remediation activities. Stay outside of the boom radius of any lever-based heavy machinery. Heavy equipment has the right of way, always ensure operator eye contact prior to movement. Loaded haul equipment has the right-of-way over empty haul equipment.

4.2.8 Illumination

For areas where night operations will take place lighting must be used to ensure worker safety. All areas where tank gauging, leachate transfer, or other nighttime work activities are occurring, must be provided with adequate lighting.

4.2.9 Noise

The ETFL operation areas are considered non-traditional and often difficult to characterize noise exposures. Please keep hearing protection readily accessible. For work areas experiencing high noise levels (greater than 85 dB) and/or impact noise (greater than 140 dB), please utilize hearing protection. Tasks requiring hearing protection include pumping into and out of frac tanks, working in close proximity to fans, generators, and light plants, or work around running heavy equipment.

4.2.10 Slip, Trip, and Fall Hazards

Uneven and slick terrain provides an environment in which slips, trips, and falls should be considered. Be aware of your travel path prior to walking or changing directions. Search for any obstructions that may present a trip hazard. Equipment piping and truck piping are also known tripping hazards.

Treacherous footing on slopes (i.e., sandy soil/clay), heavy equipment, or snakes and other animals that could be present on slopes or in bushes all present hazards at the Landfill. Walking, driving, or operating heavy equipment on steep hills or uneven terrain can be dangerous. These areas should be avoided whenever possible. When it is necessary to walk or drive in such locations, great care should be taken. Move slowly and be aware of loose materials or holes that could be present. Sharp items or spilled materials may also exist and should be avoided. When traversing steep terrain, drive straight up or down slopes to reduce the possibility of roll over. Holes, pits, and ditches may be present. Falling or driving into these hazards can be avoided by becoming familiar with the Landfill. Tall

grass or vegetation can hide these features. Do not drive in areas with which you are not familiar. Discuss access routes and hazards with site personnel. A good rule of thumb for driving is: “When in doubt—get out.” To reduce the opportunity for slip, trip, and fall hazards:

- All material must be stored in a manner that will verify that the material is safe from unexpected movement, falling, rolling, blowing, or any other uncontrolled motion.
- Materials and supplies should be kept away from the edges of floors, stairways, and access/egress routes (36 inches minimum).
- Forms and scrap lumber with protruding nails and all other debris must be cleared from work areas, passageways, stairs, and in and around buildings or other structures.
- Tripping hazards, protruding nails, oil slicks, scrap materials, and other hazardous conditions occurring during the course of the job must be eliminated as work progresses.
- Tools and equipment should not be strewn about where they might cause tripping or falling hazards, and must, at the end of each workday, be collected and stored or disposed of as appropriate.
- Protruding reinforcing steel (rebar) must be properly capped or otherwise protected to prevent a hazardous condition.
- Everyone should keep the work area and other areas where people may walk clean and orderly.
- Trip hazards must be marked or removed.
- Employees must be informed of the hazards associated with walking on slippery and or uneven surfaces.
- When possible, pedestrian traffic will be redirected around potentially dangerous areas.
- Oil spills and slippery spots must be cleaned up immediately.
- Extra precautions should be taken when walking on steel decking during wet/icy weather conditions.
- Never walk on piping, never take dangerous shortcuts, and avoid jumping from elevated places.
- Use handholds and steps when mounting or dismounting equipment.

4.2.11 Electrical Hazards

The location of all electrical power lines should be determined before any digging or excavation is performed. The presence of overhead electrical power lines should be determined so that contact with tall equipment (loaders, track hoes, etc.) can be prevented. Contracted locater services should be used before excavating or drilling and/or physical protective measures (barriers or line covers) should be used to prevent damaging or striking power lines. Some of the most basic safety requirements when dealing with electrical hazards are as follows:

- Only qualified electricians are to perform installation and repairs to electrical systems.
- When working with electrical devices, know and use a lockout procedure, including those required by government regulations.
- If electrical cables must be laid on the ground, designate crossings and place a protective cover over the cable. Guard other areas so that vehicles do not run over the exposed cables.
- Use tools with a three-wire plug and make sure the connections are tight.
- Check tools, equipment, and cables frequently for safe conditions.
- Disconnect tools before making adjustments or repairs.
- Use caution when using power tools in a wet area; the potential for shock hazard is increased.
- Extension cords used with portable electrical tools and appliances will be of three-wire types. Grounds are never to be removed from an extension cord. Electrical and extension cords or cables are not to be laid on the floor in walkways, unless they have proper protection.
- Ground Fault Circuit Interrupters will be used with all extension cords.
- Temporary lights will be equipped with guards to prevent accidental contact with the bulb.
- Splices must have insulation equal to that of the cable.
- Unless working within a Panel box, they should be covered at all times.
- Access to electrical breakers or switches must be unobstructed (3 feet of clearance in front of breakers or switches are recommended).

- Portable ladders must be equipped with non-conductive side rails if used in areas where the employee or ladder could contact exposed energized parts.
- Covers must be installed on all junction boxes, outlets, fittings, and switches to prevent accidental contact with live parts.

When working in a confined space, enclosed space, or other tight area that contains exposed energized parts:

- Protective shields, barriers, and insulating materials will be provided and used to avoid inadvertent contact with energized parts.
- Doors and hinged panels must be secured to prevent swinging into an employee and causing contact with exposed energized parts.

4.2.12 Fire and Explosion Hazards

Fuel such as gasoline and diesel are present at the Landfill. The primary risk associated with these materials is fire. Leachate may also be flammable or produce flammable vapors. Keep all ignition sources away from flammable materials.

The nature of the ETFL operation area and the existence of an ignition source, fire, variable pressures, and variable unknown sources may create explosion hazards. Fire protection at work areas includes the following objectives:

- Preventing loss of life and personal property.
- Protecting property.
- Providing uninterrupted operations.
- Preventing inception of fire.

Containers with leachate or other flammable materials may explode when heated. Vapors may travel to sources of ignition and flash back. Some vapors are heavier than air and can spread along the ground and collect in low or confined areas (basins, drains, tanks) creating fire or explosion hazard. Refer to Table 3 for information regarding ETFL operation areas action levels for flammable atmospheres.

Due to the presence of potentially flammable vapors, grounding and bonding must be in place when loading and unloading trucks. All stationary tanks must be grounded and bonded as well. When loading highway tankers, tanks must be vented to prevent an increase in pressure. All equipment must be shut off and allowed to cool before fueling operations can begin.

Operations may include hot work (i.e. cutting or grinding). Due to the potential fire and explosion hazards of various present hydrocarbons and gases within tanks and connected systems, **WELDING, THE USE OF TORCHES, GRINDING, CUTTING, DRILLING, AND OTHER SIMILAR ACTIVITIES IS NOT PERMITTED WITHOUT A HOT WORK PERMIT**. Before air monitoring for hot work is started, a **qualified person** and other contractors or personnel involved shall discuss the planned project completely, including the type of hot work to be conducted, the hazards in the area, and the provisions of the permit. If hot work occurs, air monitoring for the hot work permit, to include at minimum, LEL monitoring (confirmed by VOC readings) will be performed to determine whether combustible vapors are detected at or near the relevant Action Levels.

Fire extinguishers should be placed in convenient conspicuous locations throughout the ETFL operation area and on heavy equipment; all fire extinguishers should be identified clearly. ABC dry powder fire extinguishers will be used unless a specific hazard calls for another type. Extinguishers should be recharged and inspected regularly, and tags indicating the date of recharge should be affixed. During cold weather, fire extinguishers should be protected from freezing. Workmen should be instructed in the operation of extinguishers, and in the selection of the proper type of extinguisher at initial assignment, and annually thereafter. Replace or recharge a fire extinguisher whenever it has been used. Although it may not be empty, the fire extinguisher may not work when needed a second time.

One source of fire hazard within our control is poor housekeeping. Regular cleanup of scrap material, oily rags, oil, grease cans, and other residue of construction operations will not only remove or reduce the fire hazard but will promote general safety at the same time. Clothing that has oil or paint stains will not be placed in confined spaces; it will be hung up in the open air. Oily rags and waste will not be allowed to accumulate or be stored in closed spaces but will be disposed of when no longer needed. Areas where combustibles are stored will not contain a heating source or, if heating is necessary, it will be placed so as to avoid overheating of these materials and will have adequate ventilation. Good housekeeping will remove part of the combustible materials' danger.

Metal refuse cans with self-closing or sealing lids should be provided in several convenient locations, and especially where oily waste is produced, such as in the maintenance areas.

Depending on the size of the job, and the particular fire hazards involved, periodic inspection of the jobsites is necessary by the supervisor. The following sources of fire danger should be checked regularly:

- Temporary heating devices.
- Electrical wiring and equipment.
- Storage of flammable liquids and materials.
- Extension cords.
- The vicinity of welding and cutting operations; a 30-minute fire watch is required after welding and cutting ceases.
- “No Smoking” enforcement in fire hazard areas.
- All places exposed to sparks and heat if refuse burning takes place.
- Compressors, engine generators, and other internal combustion engines and their fuel supplies.
- Explosive magazines (e.g., grounding and No Smoking signs).

4.2.13 Dust and Airborne Particles

At minimum, safety glasses must be worn within ETLF operation areas, unless inside a vehicle or structure. The Landfill and ETLF operation areas may include dusty conditions or particulate hazards from other sources. If dusty conditions are present, helmet-mounted goggles should replace safety glasses to further protect your eyes from particulate-induced eye injury. All eye protection must meet ANSI Standard Z87.1. Consult Section 6.0 along with the CCL Canyon Landfill Personal Protective Equipment program for additional details.

4.2.14 Elevated Work

While tank gauging or working at an elevation in excess of four feet, appropriate fall protection must be in place to prevent workers from falling from heights if a properly engineered railing is not in place. All work for tank gauging must utilize the provided stair systems or ladder for the manway. Walking from the top of a tank to the top of another tank is not permitted. Elevated work with ladders or fall protection must also be conducted with a spotting system in place.

4.2.15 Water Collection Areas

Low areas where water or waste collects and is held at a depth where workers could fall and become submerged should have fencing, barriers, or railings either temporary or permanently installed. These barriers must prevent workers from falling into the low areas or be placed at such a distance that workers cannot fall into the water hazard.

4.2.16 *Equipment Operation Safety*

Excavators, bulldozers, motor graders, wheel loaders, backhoes, trenchers, articulated dump trucks, scrapers, soil compactors, compact track loaders, or skid steers loaders forklifts, large trucks, and other vehicles are present at the Landfill. The use of heavy equipment on a jobsite is vital and necessary to the overall success of the Landfill, ETLF Operation Area, and construction projects. Operate only the equipment you are qualified to operate. Unauthorized or unwise use of heavy equipment can result in personal injury, loss of life, or severe loss to materials needed to complete work activities. In addition, trash trucks of various shapes and sizes arrive onsite to dump their loads. Loud noise, traffic conditions, weather and limited visibility can increase the threat of being run over or crushed by these vehicles.

Wear high-visibility vests or coats and coordinate with vehicle operators or spotters when working in the vicinity of these pieces of equipment. Heavy equipment hazards are especially present at or near a working face, earth moving activities, and within the ETLF Operation Area. When working in these areas, equipment operators must be notified. Before starting or moving equipment, walk all the way around it to make sure persons and equipment are clear. These vehicles should not be operated within 50 feet of a person on foot. The use of a second person (as a spotter) should be done when working in these areas. When equipment is being started up or run, no employee should be standing directly in front of or behind it.

Belts, pulleys, sheaves, gears, chains, shafts, clutches, drums, flywheels, and other reciprocating or rotating parts of equipment pose potential nip or pinch points. No guard, safety appliance, or device should be removed or made ineffective unless immediate repairs or adjustments are required, and then only after the power has been shut off and proper lockout/tag-out procedures have been implemented. Guards and devices must be replaced as soon as repairs and adjustments have been completed.

High-temperature lines and equipment may endanger employees or create a fire hazard. Exhausts from all equipment powered by steam or internal combustion engines must be properly released and located so as not to endanger workers or obstruct the view of the operator.

Platforms, foot walks, steps, and ladders used for access to equipment can present slipping and/or falling hazards. It is mandatory to have three (3) points of contact when climbing on or off equipment.

Equipment backing up or swinging loads, or buckets, booms, and counterweights, pose serious hazards to ground personnel. Eye contact must be made with the operator before approaching moving machinery or equipment.

Good housekeeping should always be practiced, especially in keeping walkways and vehicle cabs clean. Items brought on board (thermoses, lunch boxes, tools) must be properly secured to prevent injury or equipment damage.

Equipment malfunctions must be reported to a supervisor. Check all equipment before operating. When parking or servicing equipment, be sure that it is properly blocked to prevent movement, and that all raised attachments or boxes are blocked and/or pinned to prevent them from coming down.

No passengers, except for training or mechanical checks, are allowed on operating equipment. Those individuals must wear seat belts or other safety restraints.

When parking equipment, lower all attachments, such as dozer blades, rippers, or buckets, to the ground.

4.2.17 Equipment Repair Safety

Check tools before use. If they are not in a safe, operable condition, operators should adjust, repair, or replace them, as needed, to make them as safe as possible.

Block all elevated items being worked on that could fall or injure personnel. For example, when working on heavy equipment and changing cutting edges, such as for dozers or scrapers, be sure to block the apron so that it cannot come down. Don't assume the hydraulics will continue to hold it in position.

Check all the way around a piece of equipment before starting or moving it for a test run. Be sure all equipment and personnel are clear.

A "Do Not Operate" tag must be placed in the control area or, if not possible, other area where it can be easily seen. This will help to protect personnel from unexpected starting or movement by another person.

Place empty oxygen and acetylene bottles in a rack with caps in place and secure them with the chain provided in the rack. Shut off oxygen and acetylene bottles when not in use; roll up hoses and store them properly.

4.2.18 Ladder Safety

General Requirements

- Ladder rungs, cleats, and steps must be level, parallel, and uniformly spaced.
- Maintain ladders free of oils, grease, mud, and ice, or other slip hazards.
- Keep the area around the top and bottom of the ladder free of debris and other obstructions.
- Persons using a ladder should face the ladder and have both hands free when ascending or descending (three points of contact). Tools or other items should be carried in pockets or tool belts unless a hand line is used for raising or lowering the item.
- Ladders that are broken, weak, or have missing rungs must not be used. Unless repairs are made immediately, they must be tagged, “Dangerous – Do Not Use.” If the ladder is beyond repair, it should be removed immediately from the jobsite.
- Ladders must not be painted; doing so may hide defects.
- Metal ladders must not be used around electrical equipment.
- Ladders will be inspected prior to use.
- When storing ladders, verify that they are securely attached, hooked or supported. Use appropriate hooks, brackets, or storage systems that holds the weight of the ladder. This eliminates the risk of damage or injury from falling or moving ladders.

Straight Ladders

- Straight ladders must be secured from slipping by:
 - Cleating in front of them.
 - Securing/tying them off at the top.
 - Equipping them with safety feet.
- Straight ladders should be placed at an angle of inclination of 1-foot horizontal for each 4-foot vertical rise.
- Straight ladders should extend at least 3-feet above the platform to be reached. Both sides of the ladder must be resting on a support.

- The top of the ladder will be secured, or the ladder held in place by another person if there is a danger of slipping.
- Sections of ladders cannot be lashed together to increase overall length.

Step Ladders

- Planks must not be used on the top of step ladders.
- Stepladders must not be used as straight ladders. Leaning or resting a step ladder against a support is prohibited.
- A metal locking device or spreader should be used to hold the front and back section in an open position when in use.
- Climbing above the second tread from the top of a step ladder is prohibited.

4.2.19 Manual Lifting

The improper handling and storing of materials can result in injuries. Manual materials handling (i.e., lifting, carrying, pushing and pulling) is the most common cause of work-related injuries with the vast majority related to back injuries. Such injuries can range from relatively mild strains to major, permanently disabling injuries. Injuries to the back and abdominal muscles from lifting heavy loads are one of the most common injuries reported. The main hazards related to materials use, handling and storage involve:

- Improper manual lifting or carrying of heavy, large or un-wielding loads.
- Being struck by materials.
- Being caught in pinch points.
- Being injured or crushed by falling or improperly stored materials.

Before lifting, survey the path being traveled for obstructions and/or obstacles and be able to see above the load when moving an object. Inspect materials for slivers, jagged or sharp edges, burrs, and rough or slippery surfaces. Wipe off greasy, wet, slippery, or dirty objects before trying to handle them. Know the weight of the object being lifted; Get assistance for weights that are over 50 pounds.

Never bend from the waist when lifting. The back should be kept straight and the arms nearly parallel with the body. The knees should be bent to grasp the load with a firm grip. Lifting should be done by

straightening the legs, with the back remaining in a nearly vertical position. Do not twist your torso; instead, move your feet. The procedure for setting down the load is the reverse of lifting the load.

If the object is too bulky or too heavy to be handled by one person, two or more people should be assigned to the task. When two or more people carry one object, they should adjust the load so that it rides level, and each person carries an equal part of the load. In addition, both people should know the destination and path where the object is to be carried.

Stacking materials can be dangerous due to falling objects or collapsing loads. Safe work practices include:

- Observe height limitations for various materials.
- Conform that stacks are stable and self-supporting.
- Stack cartons and drums on a firm foundation.
- Stack pipe on solid, level racks and block to prevent rolling.
- Stack bags or bundled material in interlocking rows to keep secure.

4.2.20 Excavation Hazards

The Cal/OSHA standards for excavation safety (8 CCR Section 1539 through 1543) must be followed at all times during excavation activities. Excavations include “any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.” This standard applies regardless of the depth of the excavation, although many of the requirements do not apply until personnel enter or the depth exceeds 5-feet. Before excavating, check with local utilities for sewer line, telephone line, water line, natural gas or fuel lines, and electric line locations. Check with the CCL Operations for other buried utilities, piping, and other sub-surface hazards. All contractors performing excavations, must have an excavation safety plan in place and provide the plan to site safety.

4.3 Biological Hazards

Rodents, poisonous insects, snakes, other animals and/or plants are a natural part of any ecosystem. They are sometimes difficult to eliminate or avoid on some landfill sites because those sites are rural and remote. Employees should be aware of the potential for encountering these types of animals and plants. Where possible, nesting places should be removed or access to them should be limited. If several infestations occur, remedies should be discussed with the onsite safety representative. The following could be encountered in performance of the operation, maintenance, and monitoring functions of a project:

4.3.1 *Bees*

Areas known to contain bees will be identified and must be avoided. In particular, Africanized Bees are aggressive and unpredictable. They respond quickly and sting in large numbers; sense threats from people or animals 50 feet or more from the nest; sense vibrations from power equipment 100 feet or more from the nest. Swarms frequently to establish new nests; pursues an enemy 3 miles or more; and nest in small cavities and sheltered areas.

4.3.2 *Snakes*

Rattlesnakes are onsite and are poisonous. Not all rattlesnakes give audible warning before they strike. Extra caution should be taken if tools or other materials are dropped in highly vegetated areas, around rocks, into stockpiles of pipe or other objects, or when walking through highly vegetated areas where visibility (of the ground) is limited. The most active times for rattlesnakes are morning, late afternoon, and early evening; however, encounters could happen at any time of the day. Be aware of areas where snakes may be present. If a snake is identified, do not approach and notify others in the area of the hazard.

4.3.3 *Coyotes*

Coyotes are normally wary of humans and will tend to avoid people at any cost; however, coyote attacks can occur. If you see a coyote in your area but it is keeping its distance and not approaching you, leave the coyote alone and do not approach it. If a coyote does approach, you want to appear as threatening and dangerous as possible. Harass it by yelling, waving your arms, throwing objects, spraying it with water, and/or stomping your feet. Most coyotes will be deterred by this and leave you alone. If it does, then no further action is needed. If a coyote lunges at you, or there was an actual attack, move to safety and notify site safety.

4.3.4 *Mountain Lions*

If you encounter a Mountain Lion, remember the goals are to convince it that you are not prey and that you may be dangerous. Follow these safety tips:

- Do not approach a mountain lion. Most mountain lions will try to avoid a confrontation. Give them a way to escape.
- Do not run from a mountain lion. Running may stimulate a mountain lion's instinct to chase. Instead, stand and face the animal. Make eye contact. If you have small children with you, pick them up if possible so that they don't panic and run. Although it may be awkward, pick them up without bending over or turning away from the mountain lion.
- Do not crouch down or bend over. A human standing up is just not the right shape for a lion's prey. Conversely, a person squatting or bending over resembles a four-legged prey animal.

In mountain lion country, avoid squatting, crouching or bending over, even when picking up children.

- Do all you can to appear larger. Raise your arms. Open your jacket if you are wearing one. Again, pick up small children. Throw stones, branches, or whatever you can reach without crouching or turning your back. Wave your arms slowly and speak firmly in a loud voice. The idea is to convince the mountain lion that you are not prey and that you may be a danger to it.
- Fight back if attacked. A hiker in southern California used a rock to fend off a mountain lion that was attacking his son. Others have fought back successfully with sticks, caps, jackets, garden tools and their bare hands. Since a mountain lion usually tries to bite the head or neck, try to remain standing and face the attacking animal.

5.0 Air Monitoring

ETFL operation area characterization data has been reviewed to determine which hazardous compounds or materials may be present in potentially unsafe concentrations. Monitoring in the ETFL operation areas includes both Time-Weighted Average (TWA) exposure assessment sampling as well as direct reading monitoring equipment and will address both area and personal assessments to evaluate risk potential for the ETLF Operation Area as well as personnel activities. Sampling strategies will be designed for the individual tasks and identified in a sampling and analysis plan. Direct reading monitoring methods will generally be used for the following strategy elements:

- Employee evaluation processes for their own work activities in order to identify or detect changing conditions that may alter exposure potentials.
- Use of direct reading instruments/equipment to survey suspect areas by grab sampling techniques in order to detect changing exposure potential (e.g., variations in concentrations of vapors).
- Use of direct reading instruments/equipment to periodically survey areas by grab sampling techniques in order to detect changing exposure potential due to unrecognized condition changes.
- Use of direct reading instruments/equipment to survey suspect areas by grab sampling techniques in order to establish priorities for TWA sampling.
- Use of direct reading equipment to conduct permit surveys for go/no go determinations (e.g., confined space entry, Hot Work Permits, or emergency response activities).

Integrated (or TWA) sampling will be used for characterizing the average exposure risk over an extended period of time, when concentrations need measured with greater accuracy, or when no direct reading method exists.

5.1 Exposure Monitoring

Personal exposure sampling and monitoring will be done periodically for a given employee activity (as opposed to evaluating an area). Area or personal sampling will conform to EPA, NIOSH, OSHA, Cal/OSHA or other similarly recognized methods when available. Monitoring will be conducted in accordance with the equipment manufacturer's operating instructions. At a minimum, six personal exposure samples will be collected from the worst-case work activities. Sampling and monitoring results will be evaluated against appropriate ACGIH, Cal/OSHA, or US OSHA exposure limits.

Once at least six samples have been collected, the work process may be considered to be characterized. Monitored and sampled compounds include, but are not limited to, those found in Table 2. See the ETLF Operation Area Sampling and Analysis Plan for additional information.

Table 2 Air Sampling Compounds

Parameter	Cal OSHA-PEL	ACGIH TLV	NIOSH IDLH	Site Action Level	Monitoring Equipment
Oxygen (O ₂)	Accepted range = 19.5% to 23.5%	N/A	<19.5%	<19.5% >23.5%	5-gas personal monitor
Methane (CH ₄)	N/A	1,000 ppm TWA (for aliphatic hydrocarbon gases)	50,000 ppm (100% of LEL)	5,000 ppm (10% of LEL)	5-gas personal monitor
Carbon Monoxide (CO)	25 ppm 8-hr TWA 200 ppm CEILING	25 ppm STEL	1,200 ppm	13 ppm	5-gas personal monitor CO Sensor
Hydrogen Sulfide (H ₂ S)	10 ppm 8-hr TWA 15 ppm STEL 20 ppm CEILING 50 ppm PEAK	1 ppm TWA 5 ppm STEL	100 ppm	0.5 ppm	5-gas personal monitor H ₂ S Sensor
Hydrogen	N/A	N/A	40,000 ppm (100% of LEL)	4,000 ppm (10% of LEL)	Hydrogen Analyzer or Gastec Tube Number 30
Hydrogen Peroxide	1 ppm	1 ppm	75 ppm	0.5	Gastec Tube Number 32
Benzene	0.5 ppm 8-hr TWA AL 1 ppm 8-hr TWA 5 ppm STEL	0.02 ppm TWA	500 ppm	0.25 ppm	UltraRAE with Benzene Sep Tube
Tetrahydrofuran	200 ppm 8-hr TWA 250 ppm STEL	50 ppm TWA 100 ppm STEL	2,000 ppm (10% of LEL)	25 ppm	PID/FID with an appropriate correction factor, Gastec Tube number 159, Draeger X-PID
Vinyl Chloride (Chloroethene)	0.5 ppm 8-hr TWA AL 1 ppm 8-hr TWA 5 ppm STEL	1 ppm TWA	N/A	0.25 ppm	PID/FID with an appropriate correction factor, Gastec Tube number 131L, Draeger X-PID
Tetrachloroethylene (Perchloroethylene)	25 ppm 8-hr TWA 100 ppm STEL 300 ppm CEILING	25 ppm TWA 100 ppm STEL	150 ppm	13 ppm	PID/FID with appropriate correction factor, Gastec Tube number 133M, Draeger X-PID
Trichloroethylene	25 ppm 8-hr TWA 100 ppm STEL 300 ppm CEILING	10 ppm TWA 25 ppm STEL	1,000 ppm	5 ppm	PID/FID with appropriate correction factor, Gastec Tube number 132M, Draeger X-PID
Volatile Organic Compounds (VOCs)	N/A	N/A	N/A	25 ppm	5-gas personal monitor

AL: California OSHA Action Level which, if exceeded, requires certain regulatory requirements be met.

PEL: Federal or state OSHA Permissible Exposure Limits are regulatory employee-exposure limits of a toxic material to which an average person in average health may be exposed on a day-to-day basis with no adverse health effects. PELs are based on specified lengths of time, typically 8 hours (see also Ceiling, TWA, and STEL).

TLV: Threshold Limit Values (TLV's) are guidelines (not standards) prepared by the American Conference of Governmental Industrial Hygienists, Inc. (ACGIH), to assist industrial hygienists in making decisions regarding safe levels of exposure to various hazards found in the workplace.

NIOSH IDLH: An atmosphere that is immediately dangerous to life or health (would cause irreversible adverse health effects or would impair an individual's ability to escape from a dangerous atmosphere).

TWA: Time-Weighted Averages are an average concentration over a certain period of time (e.g., 8-hour work period or 40-hour work week).

STEL: Short-Term Exposure Limit is the maximum average chemical concentration in which an employee can be exposed for up to 15 minutes. At no time can the employee exposure concentration exceed the "Ceiling" limit.

Ceiling: The maximum instantaneous chemical concentration in which an employee can be exposed to at any time.

Peak – Permitted to occur once over the course of 10-minutes so long as no other measurable exposure occurs.

%: Percent gas by volume.

% LEL: Percent of the lower explosive limit.

PPM: Parts per million.

Other hazards, not listed above, may also be present. Site management, and workers should continually evaluate their work location and job task for new potential sources of exposure and notify site safety with any questions, concerns, or needs for further exposure evaluation.

5.2 Personal 5-Gas Monitors and Hand-held Monitoring Equipment

As a safety practice, CCL requires workers to wear a personal 5-Gas monitor (e.g., Blackline G7 monitor or equivalent) when they conduct work within the ETLF Operation Area to detect the presence of landfill gas that may be toxic, asphyxiating and/or combustible. Due to the potential for exposure to hazardous atmospheric (airborne) conditions within the ETLF Operation Area and/or the Landfill, air monitoring is conducted by the 5-Gas monitor for oxygen (O₂), hydrogen sulfide (H₂S), carbon monoxide (CO), flammable atmospheres (lower explosive limit, LEL) and a photoionization detector (PID, for hazardous constituents) to protect employee health and safety. As a safety practice, air monitoring must be conducted for each lone worker and/or group using a personal 5-Gas monitor.

The audible alarm warning from the five-gas monitor prompts users to evaluate hazardous conditions that may not otherwise be apparent. When properly set up and used, the alarms within the monitor will sound if any of the values exceed the set points. The alarm will also sound if any of the sensors fail while the monitor is in use. For instructions on how to set alarms, review the manual, contact the manufacturer, or the safety representative in charge of equipment maintenance.

If the instrument low alarm/site action level is exceeded for any of the monitored gasses (O₂, H₂S, CO, LEL, and PID), first immediately egress the area and then evaluate the potential source from a safe location and allow the area to naturally ventilate, alter work practices, or implement engineering controls to reduce exposure below site action levels. Onsite management, including CCL and site safety, must be notified when exposure cannot be maintained below site action levels. Additionally, in the event of an alarm on the PID (Total VOCs), unless as monitor capable of measuring benzene is available, contact site safety to conduct further analysis of the hazard and vapor as VOCs may contain benzene which cannot be accurately measured with a 5-gas meter. For both high and low alarms, monitoring will be performed upon re-entry (upwind if possible) to confirm that concentrations in air are below site action levels. If alteration to work practices or implementation of additional exposure controls are unsuccessful, use of respiratory protection following a written respiratory protection program will be required. Table 3 below provides current set points for hand-held monitoring equipment.

Table 3. Personal 5-Gas Monitor Alarm Set Points

Chemical/ Parameter	Cal OSHA-PEL	ACGIH TLV	NIOSH IDLH	Site Action Level and Low Alarm Set Alarm Set Point)	High Alarm Set	Monitoring Equipment
Oxygen (O ₂)	Accepted range = 19.5% to 23.5%	N/A	<19.5%	<19.5%	>23.5%	5-gas personal monitor O ₂ Sensor
Lower Explosive Limit (LEL)	N/A	N/A	(100% of LEL)	1% of LEL	10% of LEL	5-gas personal monitor LEL Sensor
Carbon Monoxide (CO)	25 ppm 8-hr TWA 200 ppm CEILING	25 ppm STEL	1,200 ppm	13 ppm	100 ppm	5-gas personal monitor CO Sensor
Hydrogen Sulfide (H ₂ S)	10 ppm 8-hr TWA 15 ppm STEL 20 ppm CEILING 50 ppm PEAK	1 ppm TWA 5 ppm STEL	100 ppm	0.5 ppm	5 ppm	5-gas personal monitor H ₂ S Sensor
Benzene	0.5 ppm 8-hr TWA AL 1 ppm 8-hr TWA 5 ppm STEL	0.02 ppm TWA	500 ppm	0.25 ppm	2.5 ppm	UltraRAE with Benzene Sep Tube
Volatile Organic Compounds (VOCs)	N/A	N/A	N/A	25 ppm	50 ppm	5-gas personal monitor PID Sensor

Cal OSHA PEL - California Occupational Safety and Health Administration Permissible Exposure Limits are regulatory employee-exposure limits of a toxic material to which an average person in average health may be exposed on a day-to-day basis with no adverse health effects. PELs are based on specified lengths of time, typically 8 hours (see also Ceiling, TWA, and STEL).

ACGIH TLV - Threshold Limit Values (TLV's) are guidelines (not standards), to assist industrial hygienists in making decisions regarding safe levels of exposure to various hazards found in the workplace.

NIOSH IDLH - Then National Institute of Occupational Safety and Health Immediately Dangerous to Life and Health reflect levels in the atmosphere that are immediately dangerous to life or health (would cause irreversible adverse health effects or would impair an individual's ability to escape from a dangerous atmosphere).

AL: California OSHA Action Level which, if exceeded, requires certain regulatory requirements be met.

TWA - Time-Weighted Averages are an average concentration over a certain period of time (e.g., 8-hour work period or 40-hour work week).

STEL - Short-Term Exposure Limit is the maximum average chemical concentration to which an employee can be exposed for up to 15 minutes. At no time can the employee exposure concentration exceed the "Ceiling" limit.

Ceiling - The maximum instantaneous chemical concentration to which an employee can be exposed at any time.

Peak - Permitted to occur once over the course of 10-minutes so long as no other measurable exposure occurs.

%: Percent gas by volume.

LEL is the lowest concentration of a gas or vapor in air that is capable of producing a flash or fire.

PPM - Parts per million.

6.0 Hazard Analysis and PPE Assessment

A job hazard analysis is required for all work tasks performed at the ETLF Operation Area within the Landfill, to meet the requirements of this HASP. The job hazard analysis is designed to identify steps that involve potential hazards to employees and should be reviewed and understood (and signed to provide evidence of understanding) prior to the performance of any task. If additional steps or hazards are present, the hazard analysis should be revised (and the revision signed by all affected employees) to indicate that these items have been appropriately addressed and are understood before proceeding with the task. A copy of the most recent hazard analysis must be forwarded to the site safety manager and district manager for review and approval. As conditions change, an updated hazard analysis must be provided to the site safety manager prior to starting/resuming work.

For tasks where respiratory protection is required, site safety will verify that a respiratory protection program is in place (including the requirements for medical evaluation and fit testing) and is met, with assistance, as needed, from a Certified Safety Professional and/or Certified Industrial Hygienist.

6.1 Personal Protective Equipment Selection

Personal Protective Equipment (PPE) will be selected on the basis of the hazards to which the workers are exposed or potentially exposed within the ETLF operation area and are part of CCL's overall plan for employee safety. PPE is used as a last resort after hazard elimination, and engineering and administrative controls are addressed. PPE selections will be made with input from site safety, managers, supervisors, and workers. Additional PPE and other safety equipment may be required as set forth in the hazard analysis for a given task. Any downgrading of PPE must be approved by the Landfill safety representative, and if necessary, in collaboration with a Certified Industrial Hygienist.

Whenever practical, PPE will be assigned to individual workers for their exclusive use. Employees will be responsible for the PPE equipment assigned to them or used by them. PPE will be regularly cleaned, inspected, and stored according to instructions given during the training sessions or as directed by supervisors or managers. Defective or damaged PPE shall not be used. Employees must report any defective or damaged equipment to their supervisor for repair or replacement.

The following is the minimum PPE required in ETLF operation areas. Additional PPE and other safety equipment/measures may be required for tasks as set forth in the applicable job hazard assessment or specific plan.

Table 4 PPE Selection Matrix

Location/Task	Standard PPE					Task Specific PPE When Needed Based on JHA									
	Hardhat	Safety Toe Boots	High Visibility Reflective Vest	Safety Glasses with Side Shields	5 Gas Air Monitoring Device	Work Gloves	Hearing Protection	Chemical Goggles	Face Shield	Chemical Gloves	Flame Resistant Clothing	Chemical Body Protection	Chemical Boots	Fall Protection	Respirator
Offices/Non-Operational Areas															
Parking Lots and Traffic Areas			•												
Tank Farms/Leachate Collection															
General Work Area	•	•	•	•	•	•									
Gauging Tanks	•	•	•	•	•	•	•		•	•					•
Chemical Mixing	•	•	•	•	•	•	•	•	•	•	•	•			
Liquid Transferring	•	•	•	•	•	•	•	•	•	•	•	•			
Tank Inspections	•	•	•	•	•	•				•					
Sampling Tanks	•	•	•	•	•	•	•		•	•					•
Top Deck-Drilling															
Drill Operator	•	•	•	•	•	•	•			•					•
Drill Helper/QA	•	•	•	•	•	•	•		•	•					•
Equipment Operator	•	•	•	•	•	•	•			•					
Well Maintenance	•	•	•	•	•	•	•	•	•	•	•	•			•
General Work Area Personnel	•	•	•	•	•	•	•			•					

Hard hats should be compliant with Cal OSHA Title 8 Subchapter 7 Group 2 Article 10 3381.

Safety toe boots should be compliant with Cal OSHA Title 8 Subchapter 7 Group 2 Article 10 3385.

Flame-resistant clothing should be NFPA 2112 and CAT 2 rated.

Protective eye wear should be compliant with Cal OSHA Title 8 Subchapter 7 Group 2 Article 10 3382.

PPE Demarked as Task Specific should be used on a task specific basis as indicated by work plan or job hazard analysis.

Protective gloves should be compliant with Cal OSHA Title 8 Subchapter 7 Group 2 Article 10 3384.

Hearing protection is required to be worn at levels above 85 dBa or excessively loud equipment.

Goggles and face shield will be utilized based on specific tasks.

Compatible gloves include butyl rubber, natural rubber, neoprene, nitrile, and Viton.

Body Protection compatible chemical resistant materials include Tychem 2000 (QC), 4000 (SL), 5000 (CPF3), 6000 (F and FR), 9000 (BR), Responder CSM, 10000 (TK), 10000 FR

Fall protection should be utilized at heights above 4 feet where railings are not available with an approved weight-rated tie-off point.

Full-face supplied-air respirator with an assigned protection factor of 50. Workers should be fit-tested, medically cleared, and trained in accordance with their employer’s respiratory protection program. Used for tasks where feasible engineering and administrative controls fail to prevent potentially harmful exposures.

6.2 Safety Boots/Shoes

Safety steel-toed boots/shoes that meet the requirements and specifications of ANSI Z41.1 must be worn while working in field locations. Boots/shoes must be in good repair and laced or fastened. Sandals and tennis-style shoes of any type shall not be worn while working on the Landfill. Chemical safety toed boots are required when there is a potential for chemical contact.

6.3 Safety/Hard Hats

Approved safety hats that meet requirements and specifications established in ANSI Z89.1 must be worn when in the ETLF Operational Areas. This is of particular importance during drilling operations where the potential for flying debris is likely.

Safety hats are not required to be worn in vehicles (passenger cars or trucks) or offices. Safety hats are not required in construction equipment with enclosed cabs. Safety hats must be worn in any construction equipment (i.e., loaders, bobcats, excavators, dump trucks, backhoes, etc.) that do not have enclosed cabs.

6.4 Eye Protection

At a minimum, safety glasses meeting ANSI Z87.1 with side shields must be worn in the field when working in ETLF operation areas. During night operations, clear safety glasses with side shields are required. Safety glasses must be worn by equipment operators, unless eye hazards are adequately controlled by other methods (e.g., enclosed cab) that are reviewed and determined acceptable by the District Manager or site safety representative.

Proper eye protection (goggles, safety glasses, face shield, etc.) must be worn when performing work with a recognized hazard to the eyes, such as wire brushing, hammering, buffing, chipping, grinding, welding, cutting wire rope, or working with rust, dirty chains, and cables, or handling chemicals. If the job could result in injury to the eyes, eye protection is required.

Welding goggles or a welding mask must be worn while helping or working within close range of welders. Goggles and/or face shield must be worn when a splash hazard exists from leachate or other chemical hazard as detailed in the task job hazard analysis.

Eye wash stations must be present in ETLF operation areas where leachate or chemical splash hazards are present. Portable eyewash stations should be inspected as per manufacturer recommendations.

6.5 Hand Protection

Selection of gloves will be based on tasks performed, conditions present, duration of use, and hazards and potential hazards identified. For example, when handling or working with glass bottles, cut and puncture resistant gloves must be used. Contractors working within the ETLF operation areas

will have a variety of gloves available for tasks requiring specific types of gloves (e.g., chemical protective gloves).

6.6 Hearing Protection

A high noise level is defined as an area where noise levels exceed, or may exceed, 85 A-weighted decibels (dBA). Earplugs or earmuffs must be worn in areas with high noise levels. Administrative control consisting of signage will be placed if required.

6.7 Safety Vests

High visibility safety vests, shirts or jackets are required anytime personnel are working on the Landfill and within the ETLF operation areas. This requirement also applies to equipment operators whose duties involve leaving the cab of their equipment and working in the ETLF Operation Area.

6.8 Clothing

- Long pants must be worn. Pants must cover the work boot top.
- Ragged clothing shall not be worn.

7.0 Training

Each contractor and their employees will only perform tasks that they have been properly trained to perform. A copy of each employee's training record must be available in the contractor's office and made available to the Landfill management and site safety as requested.

7.1 Hazardous Waste Operations and Emergency Response

All workers within ETLF operation areas must receive *Hazardous Waste Operations and Emergency Response* training consistent with [8 C.C.R. § 5192](#). This includes, but is not limited, to equipment operators, general laborers, and others exposed to hazardous substances, health hazards, or safety hazards, and their supervisors and management responsible for the operation area. These workers will meet the training requirements prescribed in [8 C.C.R. § 5192](#) that are commensurate with their involvement.

7.2 Chemical Hazard Communication

7.2.1 Identified Chemicals

All workers must receive training on identified chemical hazards they may encounter during their work when first assigned to a new area or task and as new chemical hazards are identified. The training for each chemical hazard must meet the requirements outlined in [8 CCR§5194\(h\) – Hazard Communication Employee Information and Training](#). Chemicals workers may be exposed to depending on work area include, but are not limited to, those in Section 4.1.

7.2.2 Benzene

In addition to the training requirements in Section 7 All ETLF Operations workers must be provided with information and receive training on the hazards of benzene which meets the requirements of [8 CCR § 5218\(j\)\(3\)](#). Each worker who is potentially exposed above the action level must receive this information and training annually.

7.3 Personal Protective Equipment

Each employee who is required to use PPE or to implement any other established hazard control within the ETLF Operation Area will be trained in the following:

- Why and when PPE and hazard controls are necessary.
- What PPE is necessary and any alternative choices of equipment or hazard control.
- How to properly don, doff, adjust, and wear PPE and the use of other selected hazard control measures,
- The limitations of the PPE, and the proper care, maintenance, storage, useful life, and disposal of PPE/hazard controls and applicable safety equipment provided.

Training will typically be conducted by the contractors working in the ETLF Operation Area and will include an opportunity for employees to handle PPE or other hazard control measures. Each affected employee must demonstrate that they understand the training and are able to use the PPE/hazard control properly. The training will be documented through a written certification; the documentation will include the names of each employee trained, the date(s) of the training, and the subject matter covered.

If an employee who has been trained demonstrates a lack of knowledge or behavior that leads the supervisor to believe the employee does not fully understand the PPE/hazard control involved, that employee will be retrained. If there are changes within the ETLF Operation Area workplace or processes that change the exposures or types of PPE/hazard control to be used, affected employees will be retrained.

8.0 Acknowledgement Page

CCL project team members who are performing work on the project and site must review, understand and comply with this plan before undertaking work. This plan must be available to employees for review, and a copy must be present at the site. CCL contractors must also review, understand, and comply with this plan. Review of this plan by each worker must be documented using the following form, or other method of documentation.

“I have read the attached Health and Safety Plan for the ETLF Operation Area. I have discussed any questions and/or concerns that I have regarding the contents of this document with the designated CCL project safety representative, I understand its purpose and requirements, and consent to adhere to its policies, procedures and guidelines.”

Name	Signature	Company	Date

Appendix A: Amendments to Safety and Health Plan

Appendix A: Amendments to the Health and Safety Plan

Version 1.0		
Description of Change (include sections):		
<i>Initial version of plan.</i>		
	Name/Position	Date
Prepared By:	Jason Callahan – Senior Health Scientist	3/15/2024

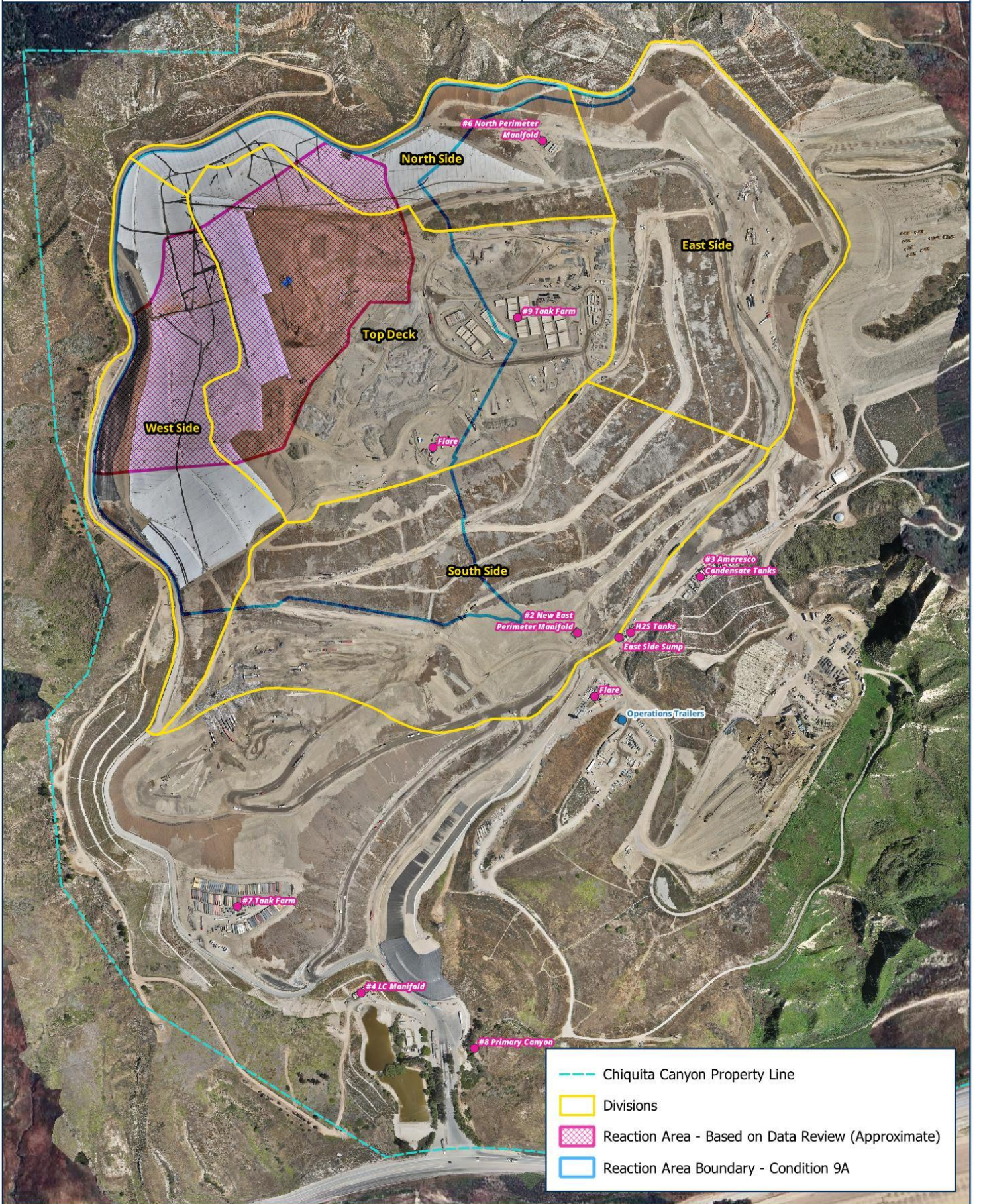
Version 1.1		
Description of Change (include sections):		
Added <i>Appendix D: Job Hazard Assessments. Formatted plan style.</i>		
	Name/Position	Date
Prepared By:	Jason Callahan – Senior Health Scientist	4/17/2024

Version 2.0		
Description of Change (include sections):		
Added <i>Section 4.1.1 on Unidentified Chemicals Section 4.1.6 on Benzene Section 4.1.7 on 1,4-dioxane Section 4.1.9 on VOCs Section 4.1.10 on Caustic solutions of sodium hydroxide Section 7.2 on Chemical Hazard Communication</i>		
Updated <i>Section 3.0 to contain description of emergency horn signals and their actions. Section 4.1.5 to include additional information on H₂S. Section 4.1.8 to no longer state a Leachate SDS does not exist. Section 4.1.9 on hydrogen peroxide to section 4.1.8 Section 4.2.5 on weather for clarity and style. Section 4.2.6 to provide additional guidance for heat illness prevention. Section 4.2.12 language regarding housekeeping to use "will" instead of "should." Section 4.3.1 to more broadly references bees instead of just Africanized Bees. Section 5.2 on personal 5-gas monitors to clarify actions for site action level exceedances. Section 7.2 on PPE to Section 7.3 Section 8 on Acknowledgements to allow for use of other forms of documentation. Table 4 to clarify that certain PPE is task specific.</i>		
Removed <i>Section 3.0 Requirement for decontamination during evacuation was overly broad.</i>		

Version 2.0		
<p><i>Section 4.1.8 on oxidizers</i></p> <p><i>Section 4.1.9 on Talon</i></p> <p><i>Section 4.1.10 on Talon Concentrate</i></p> <p><i>Section 4.1.11 on corrosives</i></p> <p><i>Section 4.2.12 Blanket requirement for FRC conflicts with FRC requirement based on JHA. Removed redundant prohibition on smoking.</i></p>		
Name/Position		Date
Prepared By:	Jason Callahan – Senior Health Scientist	6/28/2024

Version 2.1		
Description of Change (include sections):		
<p>Updated</p> <p><i>Section 4.2.6 to provide additional guidance for heat illness prevention.</i></p> <p><i>Section 5.2 to clarify site action levels and instrument alarm set points.</i></p> <p><i>Cover page and Table 1 names.</i></p>		
Name/Position		Date
Prepared By:	Jason Callahan – Senior Health Scientist	7/2/2024

Appendix B: ETLF Operation Area Map



Appendix C: Safety Data Sheets

Inspection

SECTION 1: IDENTIFICATION

1.1 Product Identifier

Product Form

Aqueous Solution

Product Name

Landfill Leachate - East Perimeter

Synonyms

Landfill Leachate
Landfill Wastewater

1.2 Intended Use of the Product

Use of the substance/mixture

None

1.3 Name, Address, and Telephone of the Responsible Party/Company

Chiquita Canyon Landfill
29201 Henry Mayo Dr
Castaic, CA 91384
USA
Phone number: (661) 257-3655

Emergency Telephone Number

Steve Cassulo 661-371-9214
Nicole Ward 661-425-4619
IF MEDICAL EMERGENCY, DIAL 911

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture (GHS-US Classification)

Skin irritation (Category 2), H313
Combustible Liquid (Category 4), H227
Hazard Not Otherwise Classified (HNOC)
For the full text of the Hazard Statements mentioned in this Section, see Section 16.

2.2 Label Elements (GHS-US Labeling)

Hazard Pictograms (GHS-US)



Photo 1

Signal Word (GHS-US)

WARNING

Hazard Statements (GHS-US)

H227 Combustible Liquid
H303 May be Harmful if swallowed.
H313 May be harmful in contact with skin.
H333 May be Harmful if inhaled.
Hazard Not Otherwise Classified (HNOC).

Precautionary Statements (GHS-US)

P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing .
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other Hazards

May cause eye irritation.

2.4 Unknown Acute Toxicity (GHS-US)

None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Landfill Leachate, Landfill Wastewater

3.2 Mixture (Include percentage of components)

No chemicals in excess of 0.1% have been detected. If leachate exhibits a change in characteristics described in Section 9, contact a supervisor and reevaluate PPE. Below table shows the detected compounds from analytical lab testing and the % of each detected compound (percent by weight assuming 1 liter of solution weighs 1000 grams):

Antimony: 0.0000097 - 0.000093 %
Arsenic: 0.00003 - 0.000085 %
Barium: 0.00012 - 0.00028 %

Chromium: 0.000027 - 0.000042 %
Cobalt: 0.0000018 - 0.0000054 %
Lead: 0.0000039 - 0.0000097 %
Molybdenum: 0.0000042 - 0.0000085 %
Nickel: 0.000013 - 0.000023 %
Vanadium: 0.000011 - 0.000015 %
Zinc: 0.00033 - 0.00051 %
Mercury: 0.0000029 - 0.000021 %
1, 4-Dichlorobenzene: 0.000002 - 0.00003 %
2-Butanone: 0.0087-0.0160 %
Benzene: 0.00006 - 0.00015 %
2-Methylphenol: 0.00004 - 0.00017 %
3-,4-Methylphenol: 0.0011 - 0.0032 %
Pyridine: 0.000082 - 0.00025 %

These compounds are assumed to be present in trace amounts in the leachate: Copper, Selenium, 1,2-Dichloroethane, Chlorobenzene. Analytical testing did not confirm detection of the analytes across all samples tested.

Component (include percentage & GHS-US classification)

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of First-aid Measures

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact, wash off with soap and plenty of water. Consult a physician.

In case of eye contact, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to medical treatment.

4.2 Most Important Symptoms and Effects Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media.
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special Hazards Arising From the Substance or Mixture

No data available.

5.3 Advice for Firefighters

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment (see section 8.2.2). Avoid becoming contaminated; do not touch your face of body; do not smoke, eat, or drink unless you have washed your hands and face thoroughly with soap and water; clean all exposed wounds, however small, and cover with a sterile, waterproof dressing; change out of contaminated clothing before eating, drinking, or smoking. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. If skin contact occurs, wash thoroughly with soap and water.

6.1.1 For Non-Emergency Personnel

See section 6.1.

6.1.2 For Emergency Personnel

See section 6.1 and section 8.2 for proper PPE requirements for any clean up of spills.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and Materials for Containment and Cleaning Up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed and labeled containers for disposal. Don proper PPE as described in section 8.2.

6.4 Reference to Other Sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see section 2.2.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Keep container closed in a well-ventilated space.

7.3 Specific End Use(s)

None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

8.2 Exposure Controls

8.2.1 Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at

the end of the workday.

8.2.2 Personal Protective Equipment (PPE)

Avoid dermal (skin) contact with leachate by using appropriate chemical-resistant gloves, boots, and/or body protection constructed from a material that is fire resistant and has a chemical permeation time sufficient to prevent dermal contact during the task. Benzene will permeate PPE constructed of nitrile, butyl rubber, and neoprene in less than one hour and should be removed and replaced if contaminated. Cloth, leather, and other glove materials that do not afford any chemical protection cannot be used for connecting/disconnecting transfer lines or other tasks where sufficient leachate contact may occur to permeate the glove material. For work tasks requiring extended contact with leachate (>1 hr.), chemical protective clothing such as Tychem 6000 FR must be worn. Chemical protective boots must be worn if required to walk through spilled or pooled leachate. To prevent dermal absorption, non-chemical protective clothing which has become contaminated with leachate should not be worn and may need to be discarded depending on the amount of contamination.

Due to the potential presence of flammable liquids and vapors, fire resistant clothing must be worn when conducting leachate transfers, working near open tank hatches, and when in the vicinity of spilled leachate, seeps, and other exposed leachate sources.

When conducting transfer of leachate by hose or other method where splash or spray hazard is present, a face shield must be worn at minimum. If transfer hoses were under sufficient pressure during transfer that an improperly depressurized line, or line failure, could result in heavy soaking spray face shield and/or goggles must be worn during line disconnect. If an overhead hazard exists (e.g., transferring from an elevated container) goggles must be worn with face shield.

Include photos or pictograms of PPEs

8.2.3 Materials for Protective Clothing

Eye/face protection: Safety glasses with side shields or safety goggles worn at all times. If conducting a leachate transfer, safety face shield also must be worn. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH or EN 166.

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws. Wash and dry hands. Use Nitrile Rubber gloves, minimum layer thickness 0.2mm with break through time of 60 min. **IF GLOVES BECOME CONTAMINATED, REMOVE AND REPLACE.**

Body protection: Full Tychem 6000 FR chemical protective clothing suit plus chemical resistant boots.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH.

8.2.4 Environmental Exposure Controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

8.2.5 Other Information

OSHA PEL for reliably detected Chemicals in Material:

Antimony: .5 mg/m³ 8 hour TWA

Arsenic: 0.01 mg/m³ 8 hour TWA

Barium: 0.5 mg/m³ 8 hour TWA

Chromium: 1 mg/m³ 8 hour TWA

Cobalt: 0.02 mg/m³ 8 hour TWA

Lead: 0.05 mg/m³ 8 hour TWA

Molybdenum: 0.5 mg/m³ 8 hour TWA

Nickel: 0.5 mg/m³ 8 hour TWA
Vanadium: 0.05 mg/m³ 8 hour TWA
Zinc: 10 mg/m³ 8 hour TWA
Mercury: 0.1 mg/m³ 8 hour TWA
1, 4-Dichlorobenzene: 75 ppm 8 hour TWA
2-Butanone: 200 ppm 8 hour TWA
Benzene: 1 ppm 8 hour TWA
2-Methyphenol: 5 ppm 8 hour TWA
3-,4-Methylphenol: 5 ppm 8 hour TWA
Pyridine: 5 ppm 8 hour TWA

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Physical State

Liquid

Appearance

Clear/colorless to light brown

Odor

Light Leachate odor

pH

5.54-6.05

Evaporation Rate

Similar to water.

Melting Point

Similar but likely above water.

Freezing Point

Similar but likely below water.

Boiling Point

No data available.

Flash Point

180 deg F.

9.2 Other Information

No other data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Potentially reactive with strong acids or strong oxidizers.

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

No data available.

10.4 Conditions to Avoid

No data available.

10.5 Incompatible Materials

No data available. Do not mix Leachate with any other materials.

10.6 Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides, Sulfur Oxides (SO_x), (NO_x) Other decomposition products – Under acidic conditions – Hydrogen Sulfide (H₂S), Basic conditions- Ammonia (NH₃)

In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute toxicity: Leachate may contain waterborne pathogens that could cause infections and disease.

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation: No data available

Serious eye damage/eye irritation: No data available

Respiratory or skin sensitization: No data available

Germ cell mutagenicity: No data available

Carcinogenicity

IARC: No known component of this material present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No known component of this material present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No known component of this material present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Note that the material does contain carcinogenic components, but not at sufficient percentages for the material itself to be classified as carcinogenic.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

T22 Fish Toxicity Test - No fatalities.

12.2 Persistence and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Other Adverse Effects

An environmental hazard cannot be excluded in the event of improper handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Provide wastewater treatment in a licensed facility.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name

Combustible liquid, n.o.s.

Hazard Class

Comb. liq

Identification Number

NA1993

Label Codes

None

Packing Group

III

ERG Number

128

14.2 In Accordance with IMDG

Proper Shipping Name

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

EmS-No. (Fire)

NA - Only ship by ground transportation.

EmS-No. (Spillage) S-C

NA - Only ship by ground transportation.

MFAG Number

NA - Only ship by ground transportation.

14.3 In Accordance with IATA

Proper Shipping Name

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

No components are subject to reporting levels established by SARA Title III, Section 313.

SARA 311/312

If reporting thresholds are exceeded.

15.2 US State Regulations

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Other Information

Revision Date: Rev 1, 3/18/2024

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HMIS Rating

Health hazard: 1

Flammability: 2

Physical Hazard 0

NFPA Rating

Health hazard: 1

Fire Hazard: 2

Reactivity Hazard: 0

GHS Full Text Phrases

H227 Combustible Liquid.

H303 May be harmful if swallowed.

H313 May be harmful in contact with skin.

H333 May be harmful if inhaled.

Hazard Not Otherwise Classified (HNOC).

P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.

P220 Keep away from clothing and other combustible materials

P262 Do not get in eyes, on skin, or on clothing.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink, or smoke while using this product.

P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves, protective clothing, eye protection, face protection.

P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.

P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.

P353 Rinse skin with water/shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disclaimer:

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Media summary



Photo 1

Inspection

SECTION 1: IDENTIFICATION

1.1 Product Identifier

Product Form

Aqueous Solution

Product Name

Landfill Leachate - LC Manifold

Synonyms

Landfill Leachate
Landfill Wastewater

1.2 Intended Use of the Product

Use of the substance/mixture

None

1.3 Name, Address, and Telephone of the Responsible Party/Company

Chiquita Canyon Landfill
29201 Henry Mayo Dr
Castaic, CA 91384
USA
Phone number: (661) 257-3655

Emergency Telephone Number

Steve Cassulo 661-371-9214
Nicole Ward 661-425-4619
IF MEDICAL EMERGENCY, DIAL 911

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture (GHS-US Classification)

Skin irritation (Category 2), H313
Combustible Liquid (Category 4), H227
Hazard Not Otherwise Classified (HNOC)
For the full text of the Hazard Statements mentioned in this Section, see Section 16.

2.2 Label Elements (GHS-US Labeling)

Hazard Pictograms (GHS-US)



Photo 1

Signal Word (GHS-US)

WARNING

Hazard Statements (GHS-US)

H227 Combustible Liquid
H303 May be Harmful if swallowed.
H313 May be harmful in contact with skin.
H333 May be Harmful if inhaled.
Hazard Not Otherwise Classified (HNOC).

Precautionary Statements (GHS-US)

P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing .
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other Hazards

May cause eye irritation.

2.4 Unknown Acute Toxicity (GHS-US)

None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Landfill Leachate, Landfill Wastewater

3.2 Mixture (Include percentage of components)

No chemicals in excess of 0.1% have been detected. If leachate exhibits a change in characteristics described in Section 9, contact a supervisor and reevaluate PPE. Below table shows the detected compounds from analytical lab testing and the % of each detected compound (percent by weight assuming 1 liter of solution weighs 1000 grams):

Antimony: 0.0000076 - 0.000026 %
Arsenic: 0.000021 - 0.000053 %
Barium: 0.00033 - 0.00046 %

Chromium: 0.000021 - 0.000029 %
Cobalt: 0.0000029 - 0.0000067 %
Copper: 0.0000024 - 0.0000079 %
Molybdenum: 0.0000039 - 0.0000097 %
Nickel: 0.000032 - 0.000065 %
Vanadium: 0.000044 - 0.000057 %
Zinc: 0.0000079 - 0.000061 %
1, 4-Dichlorobenzene: 0.000001 - 0.000003 %
2-Butanone: 0.00012-0.0024 %
Benzene: 0.0000008 - 0.000004 %
2-Methylphenol: 0.000018 - 0.00071 %
3-,4-Methylphenol: 0.00002 - 0.00039 %
Pyridine: 0.000024 - 0.000082 %

These compounds are assumed to be present in trace amounts in the leachate: Lead, Selenium, Mercury, Chloroform. Analytical testing did not confirm detection of the analytes across all samples tested.

Component (include percentage & GHS-US classification)

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of First-aid Measures

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact, wash off with soap and plenty of water. Consult a physician.

In case of eye contact, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to medical treatment.

4.2 Most Important Symptoms and Effects Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media.
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special Hazards Arising From the Substance or Mixture

No data available.

5.3 Advice for Firefighters

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment (see section 8.2.2). Avoid becoming contaminated; do not touch your face or body; do not smoke, eat, or drink unless you have washed your hands and face thoroughly with soap and water; clean all exposed wounds, however small, and cover with a sterile, waterproof dressing; change out of contaminated clothing before eating, drinking, or smoking. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. If skin contact occurs, wash thoroughly with soap and water.

6.1.1 For Non-Emergency Personnel

See section 6.1.

6.1.2 For Emergency Personnel

See section 6.1 and section 8.2 for proper PPE requirements for any clean up of spills.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and Materials for Containment and Cleaning Up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed and labeled containers for disposal. Don proper PPE as described in section 8.2.

6.4 Reference to Other Sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see section 2.2.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Keep container closed in a well-ventilated space.

7.3 Specific End Use(s)

None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

8.2 Exposure Controls

8.2.1 Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

8.2.2 Personal Protective Equipment (PPE)

Avoid dermal (skin) contact with leachate by using appropriate chemical-resistant gloves, boots, and/or body protection constructed from a material that is fire resistant and has a chemical permeation time sufficient to prevent dermal contact during the task. Benzene will permeate PPE constructed of nitrile, butyl rubber, and neoprene in less than one hour and should be removed and replaced if contaminated. Cloth, leather, and other glove materials that do not afford any chemical protection cannot be used for connecting/disconnecting transfer lines or other tasks where sufficient leachate contact may occur to permeate the glove material. For work tasks requiring extended contact with leachate (>1 hr.), chemical protective clothing such as Tychem 6000 FR must be worn. Chemical protective boots must be worn if required to walk through spilled or pooled leachate. To prevent dermal absorption, non-chemical protective clothing which has become contaminated with leachate should not be worn and may need to be discarded depending on the amount of contamination.

Due to the potential presence of flammable liquids and vapors, fire resistant clothing must be worn when conducting leachate transfers, working near open tank hatches, and when in the vicinity of spilled leachate, seeps, and other exposed leachate sources.

When conducting transfer of leachate by hose or other method where splash or spray hazard is present, a face shield must be worn at minimum. If transfer hoses were under sufficient pressure during transfer that an improperly depressurized line, or line failure, could result in heavy soaking spray face shield and/or goggles must be worn during line disconnect. If an overhead hazard exists (e.g., transferring from an elevated container) goggles must be worn with face shield.

Include photos or pictograms of PPEs

8.2.3 Materials for Protective Clothing

Eye/face protection: Safety glasses with side shields or safety goggles worn at all times. If conducting a leachate transfer, safety face shield also must be worn. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH or EN 166.

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws. Wash and dry hands. Use Nitrile Rubber gloves, minimum layer thickness 0.2mm with break through time of 60 min. IF GLOVES BECOME CONTAMINATED, REMOVE AND REPLACE.

Body protection: Full Tychem 6000 FR chemical protective clothing suit plus chemical resistant boots.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH.

8.2.4 Environmental Exposure Controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

8.2.5 Other Information

OSHA PEL for reliably detected Chemicals in Material:

Antimony: 0.5 mg/m³ 8 hour TWA

Arsenic: 0.01 mg/m³ 8 hour TWA

Barium: 0.5 mg/m³ 8 hour TWA

Chromium: 1 mg/m³ 8 hour TWA

Cobalt: 0.02 mg/m³ 8 hour TWA

Copper: 1 mg/m³ 8 hour TWA

Molybdenum: 0.5 mg/m³ 8 hour TWA

Nickel: 0.5 mg/m³ 8 hour TWA

Vanadium: 0.05 mg/m³ 8 hour TWA

Zinc: 10 mg/m³ 8 hour TWA

1, 4-Dichlorobenzene: 75 PPM 8 hour TWA
2-Butanone: 200 ppm 8 hour TWA
Benzene: 1 ppm 8 hour TWA
2-Methyphenol: 5 ppm 8 hour TWA
3-,4-Methylphenol: 5 ppm 8 hour TWA
Pyridine: 5 ppm 8 hour TWA

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Physical State

Liquid

Appearance

Clear/colorless to light brown

Odor

Light Leachate odor

pH

7.04-7.73

Evaporation Rate

Similar to water.

Melting Point

Similar but likely above water.

Freezing Point

Similar but likely below water.

Boiling Point

No data available.

Flash Point

158 deg F.

9.2 Other Information

No other data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Potentially reactive with strong acids or strong oxidizers.

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

No data available.

10.4 Conditions to Avoid

No data available.

10.5 Incompatible Materials

No data available. Do not mix Leachate with any other materials.

10.6 Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides, Sulfur Oxides (SO_x), (NO_x) Other decomposition products – Under acidic conditions – Hydrogen Sulfide (H₂S), Basic conditions- Ammonia (NH₃)

In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute toxicity: Leachate may contain waterborne pathogens that could cause infections and disease.

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation: No data available

Serious eye damage/eye irritation: No data available

Respiratory or skin sensitization: No data available

Germ cell mutagenicity: No data available

Carcinogenicity

IARC: No known component of this material present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No known component of this material present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No known component of this material present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Note that the material does contain carcinogenic components, but not at sufficient percentages for the material itself to be classified as carcinogenic.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

T22 Fish Toxicity Test - No fatalities.

12.2 Persistence and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Other Adverse Effects

An environmental hazard cannot be excluded in the event of improper handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Provide wastewater treatment in a licensed facility.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name

Combustible liquid, n.o.s.

Hazard Class

Comb. liq

Identification Number

NA1993

Label Codes

None

Packing Group

III

ERG Number

128

14.2 In Accordance with IMDG

Proper Shipping Name

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

EmS-No. (Fire)

NA - Only ship by ground transportation.

EmS-No. (Spillage) S-C

NA - Only ship by ground transportation.

MFAG Number

NA - Only ship by ground transportation.

14.3 In Accordance with IATA

Proper Shipping Name

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

No components are subject to reporting levels established by SARA Title III, Section 313.

SARA 311/312

If reporting thresholds are exceeded.

15.2 US State Regulations

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Other Information

Revision Date: Rev 1, 3/18/2024

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HMIS Rating

Health hazard: 1

Flammability: 2

Physical Hazard 0

NFPA Rating

Health hazard: 1

Fire Hazard: 2

Reactivity Hazard: 0

GHS Full Text Phrases

H227 Combustible Liquid.

H303 May be harmful if swallowed.

H313 May be harmful in contact with skin.

H333 May be harmful if inhaled.

Hazard Not Otherwise Classified (HNOC).

P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.

P220 Keep away from clothing and other combustible materials

P262 Do not get in eyes, on skin, or on clothing.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink, or smoke while using this product.

P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves, protective clothing, eye protection, face protection.

P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.

P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.

P353 Rise skin with water/shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disclaimer:

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Media summary



Photo 1

Inspection

SECTION 1: IDENTIFICATION

1.1 Product Identifier

Product Form

Aqueous Solution

Product Name

Landfill Leachate - North Perimeter

Synonyms

Landfill Leachate
Landfill Wastewater

1.2 Intended Use of the Product

Use of the substance/mixture

None

1.3 Name, Address, and Telephone of the Responsible Party/Company

Chiquita Canyon Landfill
29201 Henry Mayo Dr
Castaic, CA 91384
USA
Phone number: (661) 257-3655

Emergency Telephone Number

Steve Cassulo 661-371-9214
Nicole Ward 661-425-4619
IF MEDICAL EMERGENCY, DIAL 911

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture (GHS-US Classification)

Skin irritation (Category 2), H313
Flammable Liquid and Vapor (Category 3), H226
Hazard Not Otherwise Classified (HNOC)
For the full text of the Hazard Statements mentioned in this Section, see Section 16.

2.2 Label Elements (GHS-US Labeling)

Hazard Pictograms (GHS-US)



Photo 1



Photo 2

Signal Word (GHS-US)

WARNING

Hazard Statements (GHS-US)

H226 Flammable Liquid and Vapor.
H303 May be harmful if swallowed.
H313 May be harmful in contact with skin.
H333 May be Harmful if inhaled.
Hazard Not Otherwise Classified (HNOC).

Precautionary Statements (GHS-US)

P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing .
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other Hazards

May cause eye irritation.

2.4 Unknown Acute Toxicity (GHS-US)

None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Landfill Leachate, Landfill Wastewater

3.2 Mixture (Include percentage of components)

No chemicals in excess of 0.1% have been detected. If leachate exhibits a change in characteristics described in Section 9, contact a supervisor and reevaluate PPE. Below table shows the detected compounds from analytical lab testing and the % of each detected compound (percent by weight assuming 1 liter of solution weighs 1000 grams):

Antimony: 0.0000048 - 0.00007 %
Arsenic: 0.0000056 - 0.00004 %
Barium: 0.00018 - 0.00048 %

Chromium: 0.000022 - 0.000062 %
Cobalt: 0.0000023 - 0.0000056 %
Copper: 0.000002 - 0.000019 %
Nickel: 0.0000051 - 0.000021 %
Vanadium: 0.000009 - 0.000029 %
Zinc: 0.0000085 - 0.002 %
1,4-Dichlorobenzene: 0.0000009 - 0.000004 %
2-Butanone: 0.0017 - 0.0086 %
Benzene: 0.00004 - 0.00027 %
3-,4-Methylphenol: 0.00096 - 0.0022 %
Pyridine: 0.000015 - 0.00052 %

These compounds are assumed to be present in trace amounts in the leachate: Lead, Molybdenum, Selenium, Silver, Chlorobenzene, Tetrachloroethene, 2-Methylphenol. Analytical testing did not confirm detection of the analytes across all samples tested.

Component (include percentage & GHS-US classification)

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of First-aid Measures

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact, wash off with soap and plenty of water. Consult a physician.

In case of eye contact, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to medical treatment.

4.2 Most Important Symptoms and Effects Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media.
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special Hazards Arising From the Substance or Mixture

No data available.

5.3 Advice for Firefighters

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment (see section 8.2.2). Avoid becoming contaminated; do not touch your face or body; do not smoke, eat, or drink unless you have washed your hands and face thoroughly with soap and water; clean all exposed wounds, however small, and cover with a sterile, waterproof dressing; change out of contaminated clothing before eating, drinking, or smoking. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. If skin contact occurs, wash thoroughly with soap and water.

6.1.1 For Non-Emergency Personnel

See section 6.1.

6.1.2 For Emergency Personnel

See section 6.1 and section 8.2 for proper PPE requirements for any clean up of spills.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and Materials for Containment and Cleaning Up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed and labeled containers for disposal. Don proper PPE as described in section 8.2.

6.4 Reference to Other Sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see section 2.2.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Keep container closed in a well-ventilated space.

7.3 Specific End Use(s)

None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

8.2 Exposure Controls

8.2.1 Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

8.2.2 Personal Protective Equipment (PPE)

Avoid dermal (skin) contact with leachate by using appropriate chemical-resistant gloves, boots, and/or body protection constructed from a material that is fire resistant and has a chemical permeation time sufficient to prevent dermal contact during the task. Benzene will permeate PPE constructed of nitrile, butyl rubber, and neoprene in less than one hour and should be removed and replaced if contaminated. Cloth, leather, and other glove materials that do not afford any chemical protection cannot be used for connecting/disconnecting transfer lines or other tasks where sufficient leachate contact may occur to permeate the glove material. For work tasks requiring extended contact with leachate (>1 hr.), chemical protective clothing such as Tychem 6000 FR must be worn. Chemical protective boots must be worn if required to walk through spilled or pooled leachate. To prevent dermal absorption, non-chemical protective clothing which has become contaminated with leachate should not be worn and may need to be discarded depending on the amount of contamination.

Due to the potential presence of flammable liquids and vapors, fire resistant clothing must be worn when conducting leachate transfers, working near open tank hatches, and when in the vicinity of spilled leachate, seeps, and other exposed leachate sources.

When conducting transfer of leachate by hose or other method where splash or spray hazard is present, a face shield must be worn at minimum. If transfer hoses were under sufficient pressure during transfer that an improperly depressurized line, or line failure, could result in heavy soaking spray face shield and/or goggles must be worn during line disconnect. If an overhead hazard exists (e.g., transferring from an elevated container) goggles must be worn with face shield.

Include photos or pictograms of PPEs

8.2.3 Materials for Protective Clothing

Eye/face protection: Safety glasses with side shields or safety goggles worn at all times. If conducting a leachate transfer, safety face shield also must be worn. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH or EN 166.

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws. Wash and dry hands. Use Nitrile Rubber gloves, minimum layer thickness 0.2mm with break through time of 60 min. IF GLOVES BECOME CONTAMINATED, REMOVE AND REPLACE.

Body protection: Full Tychem 6000 FR chemical protective clothing suit plus chemical resistant boots.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH.

8.2.4 Environmental Exposure Controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

8.2.5 Other Information

OSHA PEL for reliably detected Chemicals in Material:

Antimony: 0.5 mg/m³ 8 hour TWA

Arsenic: 0.01 mg/m³ 8 hour TWA

Barium: 0.5 mg/m³ 8 hour TWA

Chromium: 1 mg/m³ 8 hour TWA

Cobalt: 0.02 mg/m³ 8 hour TWA

Copper: 1 mg/m³ 8 hour TWA

Nickel: 0.5 mg/m³ 8 hour TWA

Vanadium: 0.05 mg/m³ 8 hour TWA

Zinc: 10 mg/m³ 8 hour TWA

1,4-Dichlorobenzene: 75 ppm 8 hour TWA

2-Butanone: 200 ppm 8 hour TWA
Benzene: 1 ppm 8 hour TWA
3-,4-Methylphenol: 5 ppm 8 hour TWA
Pyridine: 5 ppm 8 hour TWA

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Physical State

Liquid

Appearance

Clear/colorless to light brown

Odor

Light Leachate odor

pH

5.58-6.20

Evaporation Rate

Similar to water.

Melting Point

Similar but likely above water.

Freezing Point

Similar but likely below water.

Boiling Point

No data available.

Flash Point

124 deg F.

9.2 Other Information

No other data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Potentially reactive with strong acids or strong oxidizers.

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

No data available.

10.4 Conditions to Avoid

No data available.

10.5 Incompatible Materials

No data available. Do not mix Leachate with any other materials.

10.6 Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides, Sulfur Oxides (SO_x), (NO_x) Other decomposition products - Under acidic conditions - Hydrogen Sulfide (H₂S), Basic conditions- Ammonia (NH₃)
In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute toxicity: Leachate may contain waterborne pathogens that could cause infections and disease.

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation: No data available

Serious eye damage/eye irritation: No data available

Respiratory or skin sensitization: No data available

Germ cell mutagenicity: No data available

Carcinogenicity

IARC: No known component of this material present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No known component of this material present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No known component of this material present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Note that the material does contain carcinogenic components, but not at sufficient percentages for the material itself to be classified as carcinogenic.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

T22 Fish Toxicity Test - No fatalities.

12.2 Persistence and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Other Adverse Effects

An environmental hazard cannot be excluded in the event of improper handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Provide wastewater treatment in a licensed facility.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name

Flammable liquids, n.o.s.

Hazard Class

3

Identification Number

UN1993

Label Codes

3

Packing Group

III

ERG Number

128

14.2 In Accordance with IMDG

Proper Shipping Name

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

EmS-No. (Fire)

NA - Only ship by ground transportation.

EmS-No. (Spillage) S-C

NA - Only ship by ground transportation.

MFAG Number

NA - Only ship by ground transportation.

14.3 In Accordance with IATA

Proper Shipping Name

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

No components are subject to reporting levels established by SARA Title III, Section 313.

SARA 311/312

If reporting thresholds are exceeded.

15.2 US State Regulations

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Other Information

Revision Date: Rev 1, 3/18/2024

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HMIS Rating

Health hazard: 1

Flammability: 2

Physical Hazard 0

NFPA Rating

Health hazard: 1

Fire Hazard: 2

Reactivity Hazard: 0

GHS Full Text Phrases

H226 Flammable Liquid and Vapor (Category 3).

H303 May be harmful if swallowed.

H313 May be harmful in contact with skin.

H333 May be harmful if inhaled.

Hazard Not Otherwise Classified (HNOC).

P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.

P220 Keep away from clothing and other combustible materials

P262 Do not get in eyes, on skin, or on clothing.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink, or smoke while using this product.

P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves, protective clothing, eye protection, face protection.

P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.

P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.

P353 Rise skin with water/shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disclaimer:

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Media summary



Photo 1



Photo 2

Inspection

SECTION 1: IDENTIFICATION

1.1 Product Identifier

Product Form

Aqueous Solution

Product Name

Landfill Leachate - Primary Canyon

Synonyms

Landfill Leachate
Landfill Wastewater

1.2 Intended Use of the Product

Use of the substance/mixture

None

1.3 Name, Address, and Telephone of the Responsible Party/Company

Chiquita Canyon Landfill
29201 Henry Mayo Dr
Castaic, CA 91384
USA
Phone number: (661) 257-3655

Emergency Telephone Number

Steve Cassulo 661-371-9214
Nicole Ward 661-425-4619
IF MEDICAL EMERGENCY, DIAL 911

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture (GHS-US Classification)

Skin irritation (Category 2), H313
Hazard Not Otherwise Classified (HNOC)
For the full text of the Hazard Statements mentioned in this Section, see Section 16.

2.2 Label Elements (GHS-US Labeling)

Hazard Pictograms (GHS-US)



Photo 1

Signal Word (GHS-US)

WARNING

Hazard Statements (GHS-US)

H303 May be Harmful if swallowed.
H313 May be harmful in contact with skin.
H333 May be harmful if inhaled.
Hazard Not Otherwise Classified (HNOC)

Precautionary Statements (GHS-US)

P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing .
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other Hazards

May cause eye irritation.

2.4 Unknown Acute Toxicity (GHS-US)

None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Landfill Leachate, Landfill Wastewater

3.2 Mixture (Include percentage of components)

No chemicals in excess of 0.1% have been detected. If leachate exhibits a change in characteristics described in Section 9, contact a supervisor and reevaluate PPE. Below table shows the detected compounds from analytical lab testing and the % of each detected compound (percent by weight assuming 1 liter of solution weighs 1000 grams):

Antimony: 0.0000073 - 0.000024 %
Arsenic: 0.000008 - 0.000046 %
Barium: 0.0000025 - 0.0006 %
Copper: 0.000015 - 0.00015 %
Zinc: 0.000023 - 0.00038 %

1,4 - Dichlorobenzene: 0.000002 - 0.000003 %
2-Butanone: 0.00031-0.00078 %
Benzene: 0.0000008 - 0.0000009 %
3-,4-Methylphenol: 0.000091 - 0.00019 %
Pyridine: 0.000031 - 0.00006 %

These compounds are assumed to be present in trace amounts in the leachate: Beryllium, Chromium, Cobalt, Lead, Molybdenum, Nickel, Vanadium, 2-Methylphenol. Analytical testing did not confirm detection of the analytes across all samples tested.

Component (include percentage & GHS-US classification)

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of First-aid Measures

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact, wash off with soap and plenty of water. Consult a physician.

In case of eye contact, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to medical treatment.

4.2 Most Important Symptoms and Effects Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media.
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special Hazards Arising From the Substance or Mixture

No data available.

5.3 Advice for Firefighters

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment (see section 8.2.2). Avoid becoming contaminated; do not touch your face or body; do not smoke, eat, or drink unless you have washed your hands and face thoroughly with soap and water; clean all exposed wounds, however small, and cover with a sterile, waterproof dressing; change out of contaminated clothing before eating, drinking, or smoking. Avoid breathing vapors, mist or gas.

Ensure adequate ventilation. Evacuate personnel to safe areas. If skin contact occurs, wash thoroughly with soap and water.

6.1.1 For Non-Emergency Personnel

See section 6.1.

6.1.2 For Emergency Personnel

See section 6.1 and section 8.2 for proper PPE requirements for any clean up of spills.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and Materials for Containment and Cleaning Up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed and labeled containers for disposal. Don proper PPE as described in section 8.2.

6.4 Reference to Other Sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see section 2.2.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Keep container closed in a well-ventilated space.

7.3 Specific End Use(s)

None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

8.2 Exposure Controls

8.2.1 Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

8.2.2 Personal Protective Equipment (PPE)

Avoid dermal (skin) contact with leachate by using appropriate chemical-resistant gloves, boots, and/or body protection constructed from a material that is fire resistant and has a chemical permeation time sufficient to prevent dermal contact during the task. Benzene will permeate PPE constructed of nitrile, butyl rubber, and neoprene in less than one hour and should be removed and replaced if contaminated. Cloth, leather, and

other glove materials that do not afford any chemical protection cannot be used for connecting/disconnecting transfer lines or other tasks where sufficient leachate contact may occur to permeate the glove material. For work tasks requiring extended contact with leachate (>1 hr.), chemical protective clothing such as Tychem 6000 FR must be worn. Chemical protective boots must be worn if required to walk through spilled or pooled leachate. To prevent dermal absorption, non-chemical protective clothing which has become contaminated with leachate should not be worn and may need to be discarded depending on the amount of contamination.

Fire resistant clothing must be worn when conducting leachate transfers, working near open tank hatches, and when in the vicinity of spilled leachate, seeps, and other exposed leachate sources.

When conducting transfer of leachate by hose or other method where splash or spray hazard is present, a face shield must be worn at minimum. If transfer hoses were under sufficient pressure during transfer that an improperly depressurized line, or line failure, could result in heavy soaking spray face shield and/or goggles must be worn during line disconnect. If an overhead hazard exists (e.g., transferring from an elevated container) goggles must be worn with face shield.

Include photos or pictograms of PPEs

8.2.3 Materials for Protective Clothing

Eye/face protection: Safety glasses with side shields or safety goggles worn at all times. If conducting a leachate transfer, safety face shield also must be worn. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH or EN 166.

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws. Wash and dry hands. Use Nitrile Rubber gloves, minimum layer thickness 0.2mm with break through time of 60 min. **IF GLOVES BECOME CONTAMINATED, REMOVE AND REPLACE.**

Body protection: Full Tychem 6000 FR chemical protective clothing suit plus chemical resistant boots.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH.

8.2.4 Environmental Exposure Controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

8.2.5 Other Information

OSHA PEL for reliably detected Chemicals in Material:

Antimony: 0.5 mg/m³ 8 hour TWA

Arsenic: 0.01 mg/m³ 8 hour TWA

Barium: 0.5 mg/m³ 8 hour TWA

Copper: 1 mg/m³ 8 hour TWA

Zinc: 10 mg/m³ 8 hour TWA

1,4 - Dichlorobenzene: 10 ppm 8 hour TWA

2-Butanone: 200 ppm 8 hour TWA

Benzene: 1 ppm 8 hour TWA

3-,4-Methylphenol: 5 ppm 8 hour TWA

Pyridine: 5 ppm 8 hour TWA

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Physical State

Liquid

Appearance

Clear/colorless to light brown

Odor

Light Leachate odor

pH

5.05-5.78

Evaporation Rate

Similar to water.

Melting Point

Similar but likely above water.

Freezing Point

Similar but likely below water.

Boiling Point

No data available.

Flash Point

212 deg F.

9.2 Other Information

No other data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Potentially reactive with strong acids or strong oxidizers.

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

No data available.

10.4 Conditions to Avoid

No data available.

10.5 Incompatible Materials

No data available. Do not mix Leachate with any other materials.

10.6 Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides, Sulfur Oxides (SO_x), (NO_x) Other decomposition products – Under acidic conditions – Hydrogen Sulfide (H₂S), Basic conditions- Ammonia (NH₃)

In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute toxicity: Leachate may contain waterborne pathogens that could cause infections and disease.

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation: No data available

Serious eye damage/eye irritation: No data available

Respiratory or skin sensitization: No data available

Germ cell mutagenicity: No data available

Carcinogenicity

IARC: No known component of this material present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No known component of this material present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No known component of this material present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Note that the material does contain carcinogenic components, but not at sufficient percentages for the material itself to be classified as carcinogenic.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

T22 Fish Toxicity Test - No fatalities.

12.2 Persistence and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Other Adverse Effects

An environmental hazard cannot be excluded in the event of improper handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Provide wastewater treatment in a licensed facility.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name

Not regulated as dangerous goods.

Hazard Class

NA

Identification Number

NA

Label Codes

NA

Packing Group

NA

ERG Number

NA

14.2 In Accordance with IMDG

Proper Shipping Name

NA

Hazard Class

NA

Subsidiary Risk(s)

NA

Identification Number

NA

Packing Group

NA

Label Codes

NA

EmS-No. (Fire)

NA

EmS-No. (Spillage) S-C

NA

MFAG Number

NA

14.3 In Accordance with IATA

Proper Shipping Name

Not regulated as dangerous goods IATA.
Not regulated as dangerous goods.

Packing Group

NA

Identification Number

NA

Hazard Class

NA

Label Codes

NA

Subsidiary Risk(s)

NA

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

No components are subject to reporting levels established by SARA Title III, Section 313.

SARA 311/312

If reporting thresholds are exceeded.

15.2 US State Regulations

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Other Information

Revision Date: Rev 1, 3/18/2024

License granted to make unlimited paper copies for internal use only. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the material with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the material. Chiquita Canyon Landfill shall not be held liable for any damage resulting from the handling or from contact with the above material.

HMIS Rating

Health hazard: 1

Flammability: 1

Physical Hazard 0

NFPA Rating

Health hazard: 1

Fire Hazard: 1

Reactivity Hazard: 0

GHS Full Text Phrases

H303 May be harmful if swallowed.

H313 May be harmful in contact with skin.

H333 May be harmful if inhaled.

Hazard Not Otherwise Classified (HNOC).

P220 Keep away from clothing and other combustible materials

P262 Do not get in eyes, on skin, or on clothing.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink, or smoke while using this product.

P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves, protective clothing, eye protection, face protection.

P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.

P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.

P353 Rise skin with water/shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disclaimer:

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Media summary



Photo 1

Inspection

SECTION 1: IDENTIFICATION

1.1 Product Identifier

Product Form

Aqueous Solution

Product Name

Landfill Leachate - Tank Farm A

Synonyms

Landfill Leachate
Landfill Wastewater

1.2 Intended Use of the Product

Use of the substance/mixture

None

1.3 Name, Address, and Telephone of the Responsible Party/Company

Chiquita Canyon Landfill
29201 Henry Mayo Dr
Castaic, CA 91384
USA
Phone number: (661) 257-3655

Emergency Telephone Number

Steve Cassulo 661-371-9214
Nicole Ward 661-425-4619
IF MEDICAL EMERGENCY, DIAL 911

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture (GHS-US Classification)

Skin irritation (Category 2), H313
Combustible Liquid (Category 4), H227
Hazard Not Otherwise Classified (HNOC)
For the full text of the Hazard Statements mentioned in this Section, see Section 16.

2.2 Label Elements (GHS-US Labeling)

Hazard Pictograms (GHS-US)



Photo 1

Signal Word (GHS-US)

WARNING

Hazard Statements (GHS-US)

H227 Combustible Liquid
H303 May be Harmful if swallowed.
H313 May be harmful in contact with skin.
H320 Causes eye irritation.
H333 May be Harmful if inhaled.
Hazard Not Otherwise Classified (HNOC)

Precautionary Statements (GHS-US)

P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing .
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other Hazards

May cause eye irritation.

2.4 Unknown Acute Toxicity (GHS-US)

None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Landfill Leachate, Landfill Wastewater

3.2 Mixture (Include percentage of components)

No chemicals in excess of 0.1% have been detected. If leachate exhibits a change in characteristics described in Section 9, contact a supervisor and reevaluate PPE. Below table shows the detected compounds from analytical lab testing and the % of each detected compound (percent by weight assuming 1 liter of solution weighs 1000 grams):

Antimony: 0.0000047 - 0.000043 %
Arsenic: 0.000015 - 0.000037 %

Barium: 0.00016 - 0.00029 %
Chromium: 0.000037 - 0.000075 %
Cobalt: 0.000002 - 0.0000063 %
Copper: 0.0000023 - 0.000028 %
Nickel: 0.000011 - 0.000028 %
Vanadium: 0.000012 - 0.000022 %
Zinc: 0.0000078 - 0.000038 %
2-Butanone: 0.00051-0.0061 %
Benzene: 0.00003 - 0.00007 %
3-,4-Methylphenol: 0.00082 - 0.0032 %
Pyridine: 0.000021 - 0.000055 %

These compounds are assumed to be present in trace amounts in the leachate: Lead, Molybdenum, Selenium, Silver, Mercury, 2-Methylphenol. Analytical testing did not confirm detection across all samples tested.

Component (include percentage & GHS-US classification)

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of First-aid Measures

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact, wash off with soap and plenty of water. Consult a physician.

In case of eye contact, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to medical treatment.

4.2 Most Important Symptoms and Effects Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media.
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special Hazards Arising From the Substance or Mixture

No data available.

5.3 Advice for Firefighters

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment (see section 8.2.2). Avoid becoming contaminated; do not touch your face or body; do not smoke, eat, or drink unless you have washed your hands and face thoroughly with soap and water; clean all exposed wounds, however small, and cover with a sterile, waterproof dressing; change out of contaminated clothing before eating, drinking, or smoking. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. If skin contact occurs, wash thoroughly with soap and water.

6.1.1 For Non-Emergency Personnel

See section 6.1.

6.1.2 For Emergency Personnel

See section 6.1 and section 8.2 for proper PPE requirements for any clean up of spills.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and Materials for Containment and Cleaning Up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed and labeled containers for disposal. Don proper PPE as described in section 8.2.

6.4 Reference to Other Sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see section 2.2.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Keep container closed in a well-ventilated space.

7.3 Specific End Use(s)

None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

8.2 Exposure Controls

8.2.1 Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

8.2.2 Personal Protective Equipment (PPE)

Avoid dermal (skin) contact with leachate by using appropriate chemical-resistant gloves, boots, and/or body protection constructed from a material that is fire resistant and has a chemical permeation time sufficient to prevent dermal contact during the task. Benzene will permeate PPE constructed of nitrile, butyl rubber, and neoprene in less than one hour and should be removed and replaced if contaminated. Cloth, leather, and other glove materials that do not afford any chemical protection cannot be used for connecting/disconnecting transfer lines or other tasks where sufficient leachate contact may occur to permeate the glove material. For work tasks requiring extended contact with leachate (>1 hr.), chemical protective clothing such as Tychem 6000 FR must be worn. Chemical protective boots must be worn if required to walk through spilled or pooled leachate. To prevent dermal absorption, non-chemical protective clothing which has become contaminated with leachate should not be worn and may need to be discarded depending on the amount of contamination.

Due to the potential presence of flammable liquids and vapors, fire resistant clothing must be worn when conducting leachate transfers, working near open tank hatches, and when in the vicinity of spilled leachate, seeps, and other exposed leachate sources.

When conducting transfer of leachate by hose or other method where splash or spray hazard is present, a face shield must be worn at minimum. If transfer hoses were under sufficient pressure during transfer that an improperly depressurized line, or line failure, could result in heavy soaking spray face shield and/or goggles must be worn during line disconnect. If an overhead hazard exists (e.g., transferring from an elevated container) goggles must be worn with face shield.

Include photos or pictograms of PPEs

8.2.3 Materials for Protective Clothing

Eye/face protection: Safety glasses with side shields or safety goggles worn at all times. If conducting a leachate transfer, safety face shield also must be worn. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH or EN 166.

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws. Wash and dry hands. Use Nitrile Rubber gloves, minimum layer thickness 0.2mm with break through time of 60 min. IF GLOVES BECOME CONTAMINATED, REMOVE AND REPLACE.

Body protection: Full Tychem 6000 FR chemical protective clothing suit plus chemical resistant boots.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH.

8.2.4 Environmental Exposure Controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

8.2.5 Other Information

OSHA PEL for reliably detected Chemicals in Material:

Antimony: 0.5 mg/m³ 8 hour TWA

Arsenic: 0.01 mg/m³ 8 hour TWA

Barium: 0.5 mg/m³ 8 hour TWA

Chromium: 1 mg/m³ 8 hour TWA

Cobalt: 0.02 mg/m³ 8 hour TWA

Copper: 1 mg/m³ 8 hour TWA

Nickel: 0.5 mg/m³ 8 hour TWA

Vanadium: 0.05 mg/m³ 8 hour TWA

Zinc: 10 mg/m³ 8 hour TWA

2-Butanone: 200 ppm 8 hour TWA

Benzene: 1 ppm 8 hour TWA
3,4-Methylphenol: 5 ppm 8 hour TWA
Pyridine: 5 ppm 8 hour TWA

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Physical State

Liquid

Appearance

Clear/colorless to light brown

Odor

Light Leachate odor

pH

6.49-6.93

Evaporation Rate

Similar to water.

Melting Point

Similar but likely above water.

Freezing Point

Similar but likely below water.

Boiling Point

No data available.

Flash Point

176 deg F.

9.2 Other Information

No other data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Potentially reactive with strong acids or strong oxidizers.

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

No data available.

10.4 Conditions to Avoid

No data available.

10.5 Incompatible Materials

No data available. Do not mix Leachate with any other materials.

10.6 Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides, Sulfur Oxides (SO_x), (NO_x) Other decomposition products - Under acidic conditions - Hydrogen Sulfide (H₂S), Basic conditions- Ammonia (NH₃)
In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute toxicity: Leachate may contain waterborne pathogens that could cause infections and disease.

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation: No data available

Serious eye damage/eye irritation: No data available

Respiratory or skin sensitization: No data available

Germ cell mutagenicity: No data available

Carcinogenicity

IARC: No known component of this material present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No known component of this material present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No known component of this material present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Note that the material does contain carcinogenic components, but not at sufficient percentages for the material itself to be classified as carcinogenic.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

T22 Fish Toxicity Test - No fatalities.

12.2 Persistence and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Other Adverse Effects

An environmental hazard cannot be excluded in the event of improper handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Provide wastewater treatment in a licensed facility.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name

Combustible liquid, n.o.s.

Hazard Class

Comb. liq

Identification Number

NA1993

Label Codes

None

Packing Group

III

ERG Number

128

14.2 In Accordance with IMDG

Proper Shipping Name

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

EmS-No. (Fire)

NA - Only ship by ground transportation.

EmS-No. (Spillage) S-C

NA - Only ship by ground transportation.

MFAG Number

NA - Only ship by ground transportation.

14.3 In Accordance with IATA

Proper Shipping Name

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

No components are subject to reporting levels established by SARA Title III, Section 313.

SARA 311/312

If reporting thresholds are exceeded.

15.2 US State Regulations

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Other Information

Revision Date: Rev 1, 3/18/2024

License granted to make unlimited paper copies for internal use only. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the material with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the material. Chiquita Canyon Landfill shall not be held liable for any damage resulting from the handling or from contact with the above material.

HMIS Rating

Health hazard: 1

Flammability: 2

Physical Hazard 0

NFPA Rating

Health hazard: 1

Fire Hazard: 2

Reactivity Hazard: 0

GHS Full Text Phrases

H227 Combustible Liquid.

H303 May be harmful if swallowed.

H313 May be harmful in contact with skin.

H333 May be harmful if inhaled.

Hazard Not Otherwise Classified (HNOC).

P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.

P220 Keep away from clothing and other combustible materials

P262 Do not get in eyes, on skin, or on clothing.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink, or smoke while using this product.

P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves, protective clothing, eye protection, face protection.

P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.

P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.

P353 Rise skin with water/shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disclaimer:

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Media summary



Photo 1

Inspection

SECTION 1: IDENTIFICATION

1.1 Product Identifier

Product Form

Aqueous Solution

Product Name

Landfill Leachate - Tank Farm B

Synonyms

Landfill Leachate
Landfill Wastewater

1.2 Intended Use of the Product

Use of the substance/mixture

None

1.3 Name, Address, and Telephone of the Responsible Party/Company

Chiquita Canyon Landfill
29201 Henry Mayo Dr
Castaic, CA 91384
USA
Phone number: (661) 257-3655

Emergency Telephone Number

Steve Cassulo 661-371-9214
Nicole Ward 661-425-4619
IF MEDICAL EMERGENCY, DIAL 911

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture (GHS-US Classification)

Skin irritation (Category 2), H313
Flammable Liquid and Vapor (Category 3), H226
Hazard Not Otherwise Classified (HNOC)
For the full text of the Hazard Statements mentioned in this Section, see Section 16.

2.2 Label Elements (GHS-US Labeling)

Hazard Pictograms (GHS-US)



Photo 1



Photo 2

Signal Word (GHS-US)

WARNING

Hazard Statements (GHS-US)

H226 Flammable Liquid and Vapor
H303 May be Harmful if swallowed.
H313 May be harmful in contact with skin.
H333 May be Harmful if inhaled.
Hazard Not Otherwise Classified (HNOC)

Precautionary Statements (GHS-US)

P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing .
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other Hazards

May cause eye irritation.

2.4 Unknown Acute Toxicity (GHS-US)

None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Landfill Leachate, Landfill Wastewater

3.2 Mixture (Include percentage of components)

No chemicals in excess of 0.1% have been detected. If leachate exhibits a change in characteristics described in Section 9, contact a supervisor and reevaluate PPE. Below table shows the detected compounds from analytical lab testing and the % of each detected compound (percent by weight assuming 1 liter of solution weighs 1000 grams):

Antimony: 0.0000073 - 0.000072 %
Arsenic: 0.0000049 - 0.000068 %
Barium: 0.00002 - 0.00068 %

Beryllium: 0.00000021 - 0.00000044 %
Chromium: 0.000028 - 0.00013 %
Cobalt: 0.0000016 - 0.000011 %
Copper: 0.0000022 - 0.000016 %
Lead: 0.0000046 - 0.0010 %
Molybdenum: 0.0000038 - 0.000011 %
Nickel: 0.0000038 - 0.000028 %
Vanadium: 0.0000026 - 0.000063 %
Zinc: 0.0002 - 0.0033 %
2-Butanone: 0.0021-0.011 %
Benzene: 0.000008 - 0.00008 %
2-Methylphenol: 0.000012 - 0.00023 %
3-,4-Methylphenol: 0.0011 - 0.0022 %
Pyridine: 0.000031 - 0.00028 %

These compounds are assumed to be present in trace amounts in the leachate: Cadmium, Selenium, Silver, Mercury, 1,4-Dichlorobenzene, Tetrachloroethene, Pentachlorophenol. Analytical testing did not confirm detection of the analytes across all samples tested.

Component (include percentage & GHS-US classification)

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of First-aid Measures

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact, wash off with soap and plenty of water. Consult a physician.

In case of eye contact, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to medical treatment.

4.2 Most Important Symptoms and Effects Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media.
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special Hazards Arising From the Substance or Mixture

No data available.

5.3 Advice for Firefighters

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment (see section 8.2.2). Avoid becoming contaminated; do not touch your face of body; do not smoke, eat, or drink unless you have washed your hands and face thoroughly with soap and water; clean all exposed wounds, however small, and cover with a sterile, waterproof dressing; change out of contaminated clothing before eating, drinking, or smoking. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. If skin contact occurs, wash thoroughly with soap and water.

6.1.1 For Non-Emergency Personnel

See section 6.1.

6.1.2 For Emergency Personnel

See section 6.1 and section 8.2 for proper PPE requirements for any clean up of spills.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and Materials for Containment and Cleaning Up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed and labeled containers for disposal. Don proper PPE as described in section 8.2.

6.4 Reference to Other Sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see section 2.2.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Keep container closed in a well-ventilated space.

7.3 Specific End Use(s)

None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

8.2 Exposure Controls

8.2.1 Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at

the end of the workday.

8.2.2 Personal Protective Equipment (PPE)

Avoid dermal (skin) contact with leachate by using appropriate chemical-resistant gloves, boots, and/or body protection constructed from a material that is fire resistant and has a chemical permeation time sufficient to prevent dermal contact during the task. Benzene will permeate PPE constructed of nitrile, butyl rubber, and neoprene in less than one hour and should be removed and replaced if contaminated. Cloth, leather, and other glove materials that do not afford any chemical protection cannot be used for connecting/disconnecting transfer lines or other tasks where sufficient leachate contact may occur to permeate the glove material. For work tasks requiring extended contact with leachate (>1 hr.), chemical protective clothing such as Tychem 6000 FR must be worn. Chemical protective boots must be worn if required to walk through spilled or pooled leachate. To prevent dermal absorption, non-chemical protective clothing which has become contaminated with leachate should not be worn and may need to be discarded depending on the amount of contamination.

Due to the potential presence of flammable liquids and vapors, fire resistant clothing must be worn when conducting leachate transfers, working near open tank hatches, and when in the vicinity of spilled leachate, seeps, and other exposed leachate sources.

When conducting transfer of leachate by hose or other method where splash or spray hazard is present, a face shield must be worn at minimum. If transfer hoses were under sufficient pressure during transfer that an improperly depressurized line, or line failure, could result in heavy soaking spray face shield and/or goggles must be worn during line disconnect. If an overhead hazard exists (e.g., transferring from an elevated container) goggles must be worn with face shield.

Include photos or pictograms of PPEs

8.2.3 Materials for Protective Clothing

Eye/face protection: Safety glasses with side shields or safety goggles worn at all times. If conducting a leachate transfer, safety face shield also must be worn. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH or EN 166.

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws. Wash and dry hands. Use Nitrile Rubber gloves, minimum layer thickness 0.2mm with break through time of 60 min. **IF GLOVES BECOME CONTAMINATED, REMOVE AND REPLACE.**

Body protection: Full Tychem 6000 FR chemical protective clothing suit plus chemical resistant boots.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH.

8.2.4 Environmental Exposure Controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

8.2.5 Other Information

OSHA PEL for reliably detected Chemicals in Material:

Antimony: 0.5 mg/m³ 8 hour TWA

Arsenic: 0.01 mg/m³ 8 hour TWA

Barium: 0.5 mg/m³ 8 hour TWA

Beryllium: 0.0002 mg/m³ 8 hour TWA

Chromium: 1 mg/m³ 8 hour TWA

Cobalt: 0.02 mg/m³ 8 hour TWA

Copper: 1 mg/m³ 8 hour TWA

Lead: 0.05 mg/m³ 8 hour TWA
Molybdenum: 0.5 mg/m³ 8 hour TWA
Nickel: 0.5 mg/m³ 8 hour TWA
Vanadium: 0.05 mg/m³ 8 hour TWA
Zinc: 10 mg/m³ 8 hour TWA
2-Butanone: 200 ppm 8 hour TWA
Benzene: 1 ppm 8 hour TWA
2-Methylphenol: 5 ppm 8 hour TWA
3-,4-Methylphenol: 5 ppm 8 hour TWA
Pyridine: 5 ppm 8 hour TWA

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Physical State

Liquid

Appearance

Clear/colorless to light brown

Odor

Light Leachate odor

pH

5.1-6.87

Evaporation Rate

Similar to water.

Melting Point

Similar but likely above water.

Freezing Point

Similar but likely below water.

Boiling Point

No data available.

Flash Point

127 deg F.

9.2 Other Information

No other data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Potentially reactive with strong acids or strong oxidizers.

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

No data available.

10.4 Conditions to Avoid

No data available.

10.5 Incompatible Materials

No data available. Do not mix Leachate with any other materials.

10.6 Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides, Sulfur Oxides (SO_x), (NO_x) Other decomposition products – Under acidic conditions – Hydrogen Sulfide (H₂S), Basic conditions- Ammonia (NH₃)

In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute toxicity: Leachate may contain waterborne pathogens that could cause infections and disease.

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation: No data available

Serious eye damage/eye irritation: No data available

Respiratory or skin sensitization: No data available

Germ cell mutagenicity: No data available

Carcinogenicity

IARC: No known component of this material present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No known component of this material present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No known component of this material present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Note that the material does contain carcinogenic components, but not at sufficient percentages for the material itself to be classified as carcinogenic.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

T22 Fish Toxicity Test - No fatalities.

12.2 Persistence and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Other Adverse Effects

An environmental hazard cannot be excluded in the event of improper handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Provide wastewater treatment in a licensed facility.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name

Flammable liquids, n.o.s.

Hazard Class

3

Identification Number

UN1993

Label Codes

3

Packing Group

III

ERG Number

128

14.2 In Accordance with IMDG

Proper Shipping Name

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

EmS-No. (Fire)

NA - Only ship by ground transportation.

EmS-No. (Spillage) S-C

NA - Only ship by ground transportation.

MFAG Number

NA - Only ship by ground transportation.

14.3 In Accordance with IATA

Proper Shipping Name

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

No components are subject to reporting levels established by SARA Title III, Section 313.

SARA 311/312

If reporting thresholds are exceeded.

15.2 US State Regulations

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Other Information

Revision Date: Rev 1, 3/18/2024

License granted to make unlimited paper copies for internal use only. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the material with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the material. Chiquita Canyon Landfill shall not be held liable for any damage resulting from the handling or from contact with the above material.

HMIS Rating

Health hazard: 1

Flammability: 2

Physical Hazard 0

NFPA Rating

Health hazard: 1

Fire Hazard: 2

Reactivity Hazard: 0

GHS Full Text Phrases

H226 Flammable Liquid and Vapor (Category 3).

H303 May be harmful if swallowed.

H313 May be harmful in contact with skin.

H333 May be harmful if inhaled.

Hazard Not Otherwise Classified (HNOC).

P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.

P220 Keep away from clothing and other combustible materials

P262 Do not get in eyes, on skin, or on clothing.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink, or smoke while using this product.

P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disclaimer:

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Media summary



Photo 1



Photo 2

Section 1. Identification

GHS product identifier : Hydrogen Peroxide 34%
Product code : 1010007-00
Other means of identification : Not available.
Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Product use : Industrial Use Only

Supplier's details : Solugen Blending, LLC
14549 Minetta St.
Houston, Texas 77035
info@solugentech.com
713-380-2134

Emergency telephone number : ChemTel US: 1-800-255-3924
ChemTel International: +1-813-248-0585
Contract Number: MIS8823660

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : OXIDIZING LIQUIDS - Category 1
ACUTE TOXICITY (oral) - Category 4
ACUTE TOXICITY (inhalation) - Category 4
SKIN CORROSION - Category 1B
EYE IRRITATION - Category 2A
CARCINOGENICITY - Category 1
Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 66%
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 66%

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : May cause fire or explosion; strong oxidizer.
Harmful if swallowed or if inhaled.
Causes severe skin burns and eye damage.
May cause cancer. (oral)

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear fire resistant or flame retardant clothing. Wear protective gloves, protective clothing and eye or face protection. Keep away from heat. No smoking. Keep away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Use only outdoors or in a well-ventilated area. Avoid breathing vapor. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

Section 2. Hazards identification

- Response** : In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. IF exposed or concerned: Get medical advice or attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor. IF SWALLOWED: Immediately call a POISON CENTER or doctor. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER or doctor. Wash contaminated clothing before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention. IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
- Storage** : Store locked up.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazards not otherwise classified** : None known.

Section 3. Composition/information on ingredients

- Substance/mixture** : Mixture
- Other means of identification** : Not available.

Ingredient name	%	CAS number
hydrogen peroxide solution	≥25 - <35	7722-84-1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Rinse immediately contaminated clothing and skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in

Section 4. First aid measures

recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Harmful if inhaled.
- Skin contact** : Causes severe burns.
- Ingestion** : Harmful if swallowed.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

Specific hazards arising from the chemical : Strongly oxidizing material. May cause fire or explosion. In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from clothing, incompatible materials and combustible materials. Wear fire resistant clothing. Keep away from heat. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Separate from reducing agents and combustible materials. Store away from grease and oil. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
hydrogen peroxide solution	ACGIH TLV (United States, 1/2021). TWA: 1 ppm 8 hours. TWA: 1.4 mg/m ³ 8 hours. OSHA PEL 1989 (United States, 3/1989). TWA: 1 ppm 8 hours. TWA: 1.4 mg/m ³ 8 hours. NIOSH REL (United States, 10/2020). TWA: 1 ppm 10 hours. TWA: 1.4 mg/m ³ 10 hours. OSHA PEL (United States, 5/2018). TWA: 1 ppm 8 hours. TWA: 1.4 mg/m ³ 8 hours.
hydrogen peroxide solution	ACGIH TLV (United States, 1/2021). TWA: 1 ppm 8 hours. TWA: 1.4 mg/m ³ 8 hours. OSHA PEL 1989 (United States, 3/1989). TWA: 1 ppm 8 hours. TWA: 1.4 mg/m ³ 8 hours. NIOSH REL (United States, 10/2020). TWA: 1 ppm 10 hours. TWA: 1.4 mg/m ³ 10 hours. OSHA PEL (United States, 5/2018). TWA: 1 ppm 8 hours. TWA: 1.4 mg/m ³ 8 hours.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection : Gloves impervious to the chemical substance are required. Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Section 8. Exposure controls/personal protection

- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

- Physical state** : Liquid.
- Color** : Colorless.
- Odor** : Sharp.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point/freezing point** : -0.43°C (31.2°F)
- Boiling point, initial boiling point, and boiling range** : 108°C (226.4°F)
- Flash point** : Not available.
- Evaporation rate** : Not available.
- Flammability** : Not available.
- Lower and upper explosion limit/flammability limit** : Not available.
- Vapor pressure** : 0.1 kPa (0.75 mm Hg)
- Relative vapor density** : 1 [Air = 1]
- Relative density** : 1.3
- Density** : 1.13 g/cm³ [20°C (68°F)]
- Solubility** : Not available.
- Solubility in water** : Not available.
- Miscible with water** : Yes.
- Partition coefficient: n-octanol/water** : -1.36
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Not available.
- Flow time (ISO 2431)** : Not available.
- Particle characteristics**
- Median particle size** : Not applicable.

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.

Section 10. Stability and reactivity

Possibility of hazardous reactions : Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following:
contact with combustible materials
Reactions may include the following:
risk of explosion

Conditions to avoid : Drying on clothing or other combustible materials may cause fire.

Incompatible materials : Highly reactive or incompatible with the following materials:
combustible materials
reducing materials

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
hydrogen peroxide solution	Eyes - Severe irritant	Rabbit	-	1 mg	-
hydrogen peroxide solution	Eyes - Severe irritant	Rabbit	-	1 mg	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
hydrogen peroxide solution	-	3	-

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
hydrogen peroxide solution	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Section 11. Toxicological information

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.
Inhalation : Harmful if inhaled.
Skin contact : Causes severe burns.
Ingestion : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
 pain
 watering
 redness
Inhalation : No specific data.
Skin contact : Adverse symptoms may include the following:
 pain or irritation
 redness
 blistering may occur
Ingestion : Adverse symptoms may include the following:
 stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.
Carcinogenicity : May cause cancer if swallowed. Risk of cancer depends on duration and level of exposure.
Mutagenicity : No known significant effects or critical hazards.
Reproductive toxicity : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
hydrogen peroxide solution	500	N/A	N/A	11	N/A
hydrogen peroxide solution	500	N/A	N/A	11	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
hydrogen peroxide solution	Acute EC50 1.2 mg/l Marine water	Algae - Dunaliella tertiolecta - Exponential growth phase	72 hours
	Acute EC50 2320 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
hydrogen peroxide solution	Acute LC50 93 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 100 mg/l Fresh water	Fish - Micropterus salmoides	28 days
	Acute EC50 1.2 mg/l Marine water	Algae - Dunaliella tertiolecta - Exponential growth phase	72 hours
	Acute EC50 2320 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 93 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 100 mg/l Fresh water	Fish - Micropterus salmoides	28 days

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
hydrogen peroxide solution	-1.36	-	low
hydrogen peroxide solution	-1.36	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.











Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IMDG	IATA
UN number	UN2014	UN2014	UN2014	UN2014	UN2014
UN proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION	HYDROGEN PEROXIDE, AQUEOUS SOLUTION	PEROXIDO DE HIDROGENO EN SOLUCION ACUOSA	HYDROGEN PEROXIDE, AQUEOUS SOLUTION	Hydrogen peroxide, aqueous solution

Section 14. Transport information

Transport hazard class(es)	5.1 (8)  	5.1 (8)  	5.1 (8)  	5.1 (8)  	5.1 (8)  
Packing group	II	II	II	II	II
Environmental hazards	No.	No.	No.	No.	No.

Additional information

TDG Classification

: Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.23-2.25 (Class 5), 2.40-2.42 (Class 8).

Explosive Limit and Limited Quantity Index 1

Passenger Carrying Vessel Index Forbidden

Passenger Carrying Road or Rail Index Forbidden

Mexico Classification

: **Special provisions** 65

IATA

: The environmentally hazardous substance mark may appear if required by other transportation regulations.

Quantity limitation Passenger and Cargo Aircraft: Forbidden. Cargo Aircraft Only: Forbidden. Limited Quantities - Passenger Aircraft: Forbidden.

Remarks Air regulation permit shipment of Hydrogen Peroxide (<=40%) in non-vented containers for Air Cargo Only aircraft, as well as for Passenger and Cargo aircraft. HOWEVER, all Solugen Hydrogen Peroxide containers are vented and therefore, air shipments of Solugen H₂O₂ are not permitted. IATA air regulations state that venting of packages containing oxidizing substances is not permitted for air transport.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

U.S. Federal regulations : TSCA 8(a) CDR Exempt/Partial exemption: Not determined

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
hydrogen peroxide solution	≥25 - <35	Yes.	1000	106.1	1000	106.1

SARA 304 RQ : 1000 lbs / 454 kg [106.1 gal / 401.8 L]

Section 15. Regulatory information

SARA 311/312

Classification : OXIDIZING LIQUIDS - Category 1
 ACUTE TOXICITY (oral) - Category 4
 ACUTE TOXICITY (inhalation) - Category 4
 SKIN CORROSION - Category 1B
 EYE IRRITATION - Category 2A
 CARCINOGENICITY - Category 1

Composition/information on ingredients

Name	%	Classification
hydrogen peroxide solution	≥25 - <35	OXIDIZING LIQUIDS - Category 1 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1A EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

State regulations

Massachusetts : The following components are listed: HYDROGEN PEROXIDE
New York : The following components are listed: Hydrogen peroxide
New Jersey : The following components are listed: HYDROGEN PEROXIDE
Pennsylvania : The following components are listed: HYDROGEN PEROXIDE

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : All components are listed or exempted.
Canada : All components are listed or exempted.
China : All components are listed or exempted.
Europe : All components are listed or exempted.
Japan : **Japan inventory (CSCL)**: All components are listed or exempted.
Japan inventory (ISHL): All components are listed or exempted.
New Zealand : All components are listed or exempted.
Philippines : All components are listed or exempted.
Republic of Korea : All components are listed or exempted.
Taiwan : All components are listed or exempted.
Thailand : All components are listed or exempted.
Turkey : All components are listed or exempted.
United States : All components are active or exempted.

Section 15. Regulatory information

Viet Nam : All components are listed or exempted.

Section 16. Other information

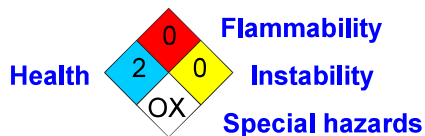
Hazardous Material Information System (U.S.A.)

Health	*	3
Flammability		0
Physical hazards		3

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)



Procedure used to derive the classification

Classification	Justification
OXIDIZING LIQUIDS - Category 1	Expert judgment
ACUTE TOXICITY (oral) - Category 4	Calculation method
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
SKIN CORROSION - Category 1B	Calculation method
EYE IRRITATION - Category 2A	On basis of test data
CARCINOGENICITY - Category 1	Expert judgment

History

Date of printing : 12/28/2021

Date of issue/Date of revision : 12/28/2021

Date of previous issue : 5/17/2021

Version : 3

Key to abbreviations

: ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 N/A = Not available
 SGG = Segregation Group
 UN = United Nations

References : Not available.

📄 Indicates information that has changed from previously issued version.

Notice to reader

Section 16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Safety Data Sheet
CAUSTIC SODA 50%

Version 1.10

Revision Date: 11/11/2023

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**Product name** : CAUSTIC SODA 50%**Recommended use of the chemical and restrictions on use**

Recommended use : Reserved for industrial and professional use.

Manufacturer or supplier's details**Company** : Univar Solutions USA
Address : 3075 Highland Pkwy Suite 200
Downers Grove, IL 60515
United States of America (USA)**Emergency telephone number:**

Transport North America: CHEMTREC (1-800-424-9300)

CHEMTREC INTERNATIONAL Tel # 703-527-3887

Additional Information: : Responsible Party: Product Compliance Department
E-mail: SDSNA@univarsolutions.com
SDS Requests: 1-855-429-2661
Website: www.univarsolutions.com**SECTION 2. HAZARDS IDENTIFICATION****GHS Classification**

Corrosive to metals : Category 1

Acute toxicity (Oral) : Category 4

Skin corrosion : Category 1A

Serious eye damage : Category 1

Specific target organ toxicity
- single exposure : Category 3 (Respiratory system)**GHS label elements**

Hazard pictograms :



Signal word : Danger

Hazard statements : H290 May be corrosive to metals.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.Precautionary statements : **Prevention:**
P234 Keep only in original container.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.

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P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

P363 Wash contaminated clothing before reuse.

P390 Absorb spillage to prevent material damage.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P406 Store in corrosive resistant container with a resistant inner liner.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

CAS-No.	Chemical name	Weight percent
1310-73-2	Sodium hydroxide	50 - 70

Actual concentration is withheld as a trade secret

Any Concentration shown as a range is due to batch variation.

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.
- In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficul-

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- | | |
|------------------------|--|
| In case of eye contact | ty.
If on skin, rinse well with water.
If on clothes, remove clothes.
: Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
Take victim immediately to hospital. |
| If swallowed | : Keep respiratory tract clear.
Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital. |

SECTION 5. FIREFIGHTING MEASURES

- | | |
|---|---|
| Suitable extinguishing media | : Carbon dioxide (CO2)
Foam
Dry powder
Water mist |
| Unsuitable extinguishing media | : High volume water jet |
| Specific hazards during fire-fighting | : Do not allow run-off from fire fighting to enter drains or water courses. |
| Hazardous combustion products | : No hazardous combustion products are known |
| Further information | : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. |
| Special protective equipment for firefighters | : Wear self-contained breathing apparatus for firefighting if necessary. |

SECTION 6. ACCIDENTAL RELEASE MEASURES

- | | |
|---|---|
| Personal precautions, protective equipment and emergency procedures | : Use personal protective equipment. |
| Environmental precautions | : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities. |
| Methods and materials for | : Soak up with inert absorbent material (e.g. sand, silica gel, |

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containment and cleaning up : acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Advice on safe handling : Do not breathe vapours/dust.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

Recommended storage temperature : 16 - 65 °C

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

CAS-No.	Components	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
1310-73-2	Sodium hydroxide	C	2 mg/m ³	ACGIH
		C	2 mg/m ³	NIOSH REL
		TWA	2 mg/m ³	OSHA Z-1
		C	2 mg/m ³	OSHA P0
		C	2 mg/m ³	CAL PEL

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

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Remarks	: The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Eye protection	: Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	: Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	: When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Colour	: No data available
Odour	: No data available
Odour Threshold	: No data available
pH	: 14
Freezing Point (Melting point/freezing point)	: 12 - 15 °C (54 - 59 °F)
Boiling Point (Boiling point/boiling range)	: 140 - 145 °C (284 - 293 °F)
Flash point	: does not flash
Evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapour pressure	: No data available
Relative vapour density	: No data available
Relative density	: 1.5298
Density	: 12.76 lb/gal
Water solubility	: No data available
Solubility in other solvents	: No data available
Partition coefficient: n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Thermal decomposition	: No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: Corrosive to metals Exothermic reaction with acids.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No decomposition if stored and applied as directed.
Conditions to avoid	: Freezing temperatures.

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Incompatible materials	: Heat Acids Metals Oxidizing agents Halogenated compounds organic nitro compounds Zinc
Hazardous decomposition products	: Hydrogen

SECTION 11. TOXICOLOGICAL INFORMATION**Skin corrosion/irritation****Components:****1310-73-2:**

Species: Rabbit

Result: Causes severe burns.

Serious eye damage/eye irritation**Components:****1310-73-2:**

Species: Rabbit

Result: Risk of serious damage to eyes.

Carcinogenicity**IARC**

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

STOT - single exposure**Product:**

Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

Further information**Product:**

Remarks: No data available

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SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity**

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects**Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of in accordance with all applicable local, state and federal regulations.
For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Univar Solutions ChemCare: 1-800-637-7922

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION**DOT (Department of Transportation):**

UN1824, Sodium hydroxide solution, 8, II

IATA (International Air Transport Association):

UN1824, Sodium hydroxide solution, 8, II

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IMDG (International Maritime Dangerous Goods):
 UN1824, SODIUM HYDROXIDE SOLUTION, 8, II

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Sodium hydroxide	1310-73-2	1000	2000

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Corrosive to metals
 Skin corrosion or irritation
 Serious eye damage or eye irritation
 Acute toxicity (any route of exposure)
 Specific target organ toxicity (single or repeated exposure)

SARA 302 : This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

1310-73-2 Sodium hydroxide

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

1310-73-2 Sodium hydroxide

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

Massachusetts Right To Know

1310-73-2 Sodium hydroxide

Pennsylvania Right To Know

1310-73-2 Sodium hydroxide

7732-18-5 Water

California Prop 65 : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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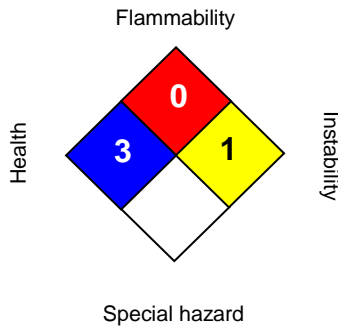
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The components of this product are reported in the following inventories:

- TSCA : On TSCA Inventory
- DSL : All components of this product are on the Canadian DSL
- AICS : On the inventory, or in compliance with the inventory
- NZIoC : Not in compliance with the inventory
- ENCS : On the inventory, or in compliance with the inventory
- KECI : On the inventory, or in compliance with the inventory
- PICCS : On the inventory, or in compliance with the inventory
- IECSC : On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	3/
FLAMMABILITY	0
PHYSICAL HAZARD	4

0 = not significant, 1 =Slight,
 2 = Moderate, 3 = High
 4 =Extreme, * = Chronic

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Univar Solutions Product Compliance Department (1-855-429-2661) SDSNA@univarsolutions.com.

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Material number:

- 16212043, 16212042, 16212041, 16212039, 16212038, 16210888, 16149051, 16210426, 16208930, 16208441, 16207958, 16207089, 16206212, 16206172, 16195419, 16196593, 16203117, 16193663, 16191539, 16188943, 16188859, 16188905, 40509, 16144372, 85833, 16187875, 16187706, 16187503, 16187172, 16184289, 16184571, 16183215, 16183115,

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16181535, 16174812, 16176162, 16176725, 16175550, 16177057, 16176719, 16176286, 16175611, 16175549, 16177342, 16174633, 16176146, 16175652, 16175317, 16174795, 16174563, 16176924, 16180636, 16169042, 16168322, 16168270, 16168140, 16168139, 16179411, 16169006, 16168617, 16150547, 16162842, 16162538, 16144429, 16173515, 16168911, 16162950, 16162022, 16144216, 16143594, 16162020, 16168720, 16166706, 16152119, 16173289, 16179365, 16166192, 16137935, 16161861, 16143735, 16151817, 85472, 52714, 71460, 54298, 16168314, 16146819, 16163462, 16148908, 16144035, 16166958, 16166445, 16137825, 16151508, 16151289, 16160192, 16147037, 16156058, 16155066, 16135486

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		



Suite 450
One North Shore Center
12 Federal Street
Pittsburgh, PA 15212

Safety Data Sheet

KR-DF7018

1. IDENTIFICATION

Product name KR-DF7018
Description Organic Defoamer / Antifoam
Product class Antifoam / Defoamer
Supplier address Suite 450
One North Shore Center
12 Federal Street
Pittsburgh, PA 16212
Telephone numbers
Company Phone Number (412) 321-9800
Emergency Telephone CHEMTREC 1-800-424-9300

2. HAZARDS IDENTIFICATION

OSHA Regulatory Status HNOC: This product is considered a hazardous chemical according OSHA GHS Hazard Communication regulation 29 C.F.R. § 1910.1200.
Hazard classification NA
Signal word NA
Hazard statements NA
Pictograms of related hazards NA
Hazards not otherwise classified Defatting to the skin. Prolonged or repeated contact may dry skin and cause irritation.
Precautionary statements NA

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous or Regulated Components

Chemical Name	CAS #	Weight %
Distillates (petroleum), hydrotreated heavy naphthenic	647-52-5	88-96

The precise concentration is being withheld as a proprietary trade secret. Bona fide requests for disclosure to medical personnel must be made in accordance with the procedures in 29 C.F.R. § 1910.1200(i)1-13.

4. FIRST-AID MEASURES

Eye contact	Flush eyes with gently flowing water for a minimum of fifteen minutes. Check for and remove contact lenses. Hold eyelids apart to ensure rinsing of the entire surface of the eye and lids with water. If irritation develops, seek medical attention immediately.
Skin contact	Wash exposed areas with soap and water. Remove contaminated clothing while washing continuously. Discard contaminated clothing and shoes.
Ingestion	If swallowed, dilute with two glasses of water. Seek medical attention immediately. INDUCE VOMITING ONLY UPON ADVICE OF A PHYSICIAN. Never give anything by mouth if victim is unconscious or having convulsions.
Inhalation	Move victim to fresh air. Assist in breathing, if necessary, and seek immediate medical attention.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	This product will ignite when exposed to an ignition source while at a temperature at or above its flash point. Use carbon dioxide, dry chemical or alcohol-type foam or universal-type foams to extinguish flames. Water spray may be used to cool fire-exposed containers.
Unsuitable extinguishing media	No information available.
Protective equipment and precautions for firefighters	Wear self-contained breathing apparatus and protective clothing when combating a chemical fire in a confined area.
Specific hazards	Thermal breakdown of this product will evolve the following decomposition products: fumes, smoke, carbon monoxide, carbon dioxide and traces of incompletely burned hydrocarbon compounds. Overexposure to the products of combustion may result in respiratory irritation.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Remove spills promptly as they may make floors slippery. Several washes and/or the use of detergents may be necessary to completely clean any spill. Wear recommended protective equipment outlined in Section 8 of this document and provide adequate ventilation during clean-up.
Methods for clean-up	Spills should be contained, solidified with absorbent, noncombustible material and placed in labeled containers for disposal. Material should be disposed of at a licensed facility. As supplied, this material is not regulated by RCRA or CERCLA.

7. HANDLING AND STORAGE

Advice on safe handling	Avoid contact with eyes, skin and clothing. Use with adequate ventilation. Wash thoroughly after handling. Ensure that containers are properly secured prior to moving.
Storage conditions	Keep container closed during any storage. Protect from moisture and foreign materials. Avoid direct sunlight. Store product away from combustible materials. For optimum storage conditions, store between 45°F and 100°F.
Materials to avoid	No information available
Storage Stability	Keep out of sun and away from heat, sparks or open flame.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	OSHA PEL	ACGIH TLV
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	5 mg/m ³ (Mist) 8 Hours	5 mg/m ³ (Inhalable fraction) 8 Hours

Occupational exposure controls	Control airborne concentrations below the exposure guideline. General Ventilation is recommended.
Eye protection	Safety glasses with side shields are recommended as a minimum, but chemical goggles or a face shield provide better protection.
Skin protection	Skin contact should be minimized. Wash all affected areas prior to eating and at completion of handling. Contaminated clothing should be removed at completion of handling. Impervious gloves (butyl, neoprene, nitrile), coveralls or apron and boots are recommended.

Respiratory protection

If proper ventilation is unavailable, use an NIOSH approved air-purifying respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

pH	ND
Appearance	Tan to pale amber opaque liquid
Odor	mild odor
Specific Gravity	0.885
Pour point	35°F
Melting/freezing point	ND
Boiling point/boiling range	ND
Flash point	> 149°C (>300°F)
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability	No information available
Vapor pressure	No data available
Vapor density	No data available
VOC content	3.2%, EPA Test Method 24
Solubility	Dispersible in water
Partition coefficient n-octanol/water	Not determined
Auto-ignition temperature	No information available
Decomposition temperature	No information available
Viscosity	600-1500 cP

10. STABILITY AND REACTIVITY

Reactivity

Non-reactive product under normal use conditions.

Chemical stability

Stable under normal conditions of storage and handling.

Hazardous polymerization

Polymerization will not occur under normal use conditions.

Conditions to avoid

Heat, sparks and open flames

Incompatibilities

Strong acids, alkalis and strong oxidizing agents.

Hazardous decomposition products

Not anticipated under normal use conditions.

11. TOXICOLOGICAL INFORMATION

Likely routes of exposure Skin, eyes, ingestion

Acute toxicity

Test Material	Parameter	Result
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	LD50, Oral (rat)	>5000 mg/L
	LD50, Dermal (rabbit)	>2000 mg/L
	LD50, Inhalation dust & mist (rat)	5.7 mg/L / 4 hours

Irritation and corrosion

Eye (acute)	May cause transient irritation, redness and/or tearing.
Eye (chronic)	No chronic effects anticipated.
Skin (acute)	May cause skin irritation and defatting of the skin.
Skin (chronic)	Prolonged and repeated contact can de-fat the skin and lead to irritation, cracking and/or dermatitis.
Ingestion (acute)	May result in nausea/intestinal discomfort.
Ingestion (chronic)	No chronic effects anticipated.
Inhalation (acute)	May irritate mouth, throat and stomach.
Inhalation (chronic)	No chronic effects anticipated.

Long term toxicity

Reproductive effects	None known.
Mutagenicity	None known.
Embryotoxicity	None known.
Sensitization to product	None known.
Synergistic products	None known.
Carcinogenicity	None known. Oil contains less than 3 % DMSO extract as measured by IP 346.
Chronic	None known.

12. ECOLOGICAL INFORMATION

No data available.

Mobility	No information.
Biological degradability:	No information

Bioaccumulative potential No information

13. DISPOSAL CONSIDERATIONS

Disposal Discarded product is not considered a hazardous waste under RCRA, 40 CFR 261. Please dispose of in accordance with all local, state and federal regulations. It is recommended that the waste be incinerated or land filled at a licensed facility. Do not distribute, make available, furnish or reuse empty container except for storage and shipment of original product.

14. TRANSPORT INFORMATION

US Department of Transportation (DOT) Not classified as dangerous in the meaning of transport regulations.

UN Number

Proper shipping name

Primary hazard class/division

Packing group

Label

15. REGULATORY INFORMATION

SARA Section 311/312 Categories

Acute

SARA 302 Extremely Hazardous Substances

None Present ()

SARA 313 - Specific Toxic Chemical Listings

As supplied, no chemical in this product exceeds the de minimis reporting level established by SARA Title III, Section 313 and 40 CFR 372.

California Proposition 65

This product does not intentionally contain any chemicals known by the State of California to cause birth defects, cancer and/or other reproductive harm. Additionally, based on theoretical calculations using vendor toxicity data, it was determined that this product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a notification/action under the statute.

Notification status

All components of this product are included on or exempt from the following national chemical inventories:

United States (TSCA)
Canada (DSL)
Australia (AICS)
China (IECSC)
Korea (KECL)
Philippines (PICCS)
Japan (ENCS)
Europe (EINECS)

16. OTHER INFORMATION

HMIS Ratings	Health—1; Flammability—0; Reactivity—0
NFPA Codes	Health—1; Flammability—0; Reactivity—0; Special Hazard—None
Hazard Rating Scale	Minimal—0; Slight—1; Moderate—2; Serious—3; Severe—4
SDS Issue Date	January 18, 2018
Revision Date	Version 1

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Safety Data Sheet

Polytec PT-135

Revision Date 5/15/15

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Ferric Chloride Solution DWG Grade
UN/ID No. UN2582
Synonyms Iron (III) Chloride, Iron trichloride, FeCl₃
Recommended Use Water treatment chemical
Uses advised against Consumer uses: Private households (= general public = consumers).

Company Name

Polytec, Inc.
191 Barley Park Lane
Mooresville, NC 28115

24 Hour Emergency Phone Number CHEMTREC 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1

Emergency Overview

DANGER

Hazard statements

Causes severe skin burns and eye damage
Harmful if swallowed

Physical hazards

Corrosive
May be corrosive to metals



Precautionary statements

Prevention

- Wear eye/face protection
- Wear protective gloves/protective clothing/eye protection/face protection
- Do not breathe dust/fume/gas/mist/vapors/spray
- Do not eat, drink or smoke when using this product

Response

- Wash face, hands and any exposed skin thoroughly after handling
- Immediately call a POISON CENTER or doctor/physician
- Specific treatment (see section 4 on this Safety Data Sheet)

Storage

- Store in a secure area

Disposal

- Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC) None known.

Other Information

Other hazards

- Toxic to aquatic life with long lasting effects
- Toxic to aquatic life

SDS- PT-135 Ferric Chloride Solution DWG Grade

Unknown Acute Toxicity

0.85% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	EC No.	Weight-% *
Water	7732-18-5	231-791-2	55-69
Iron trichloride	7705-08-0	231-729-4	31-45
Hydrogen chloride	7647-01-0	231-595-7	0.0-1.0
Ferrous chloride	7758-94-3	231-843-4	0.0-0.7

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

General advice	<ul style="list-style-type: none">• Immediate medical attention is required
Eye contact	<ul style="list-style-type: none">• Immediate medical attention is required• Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes• Do not rub affected area
Skin Contact	<ul style="list-style-type: none">• Immediate medical attention is required• Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes• Wash contaminated clothing before reuse
Inhalation	<ul style="list-style-type: none">• Call a physician or poison control center immediately• Remove to fresh air• If not breathing, give artificial respiration• If breathing is difficult, give oxygen
Ingestion	<ul style="list-style-type: none">• Call a physician or poison control center immediately• Do NOT induce vomiting• Rinse mouth• Drink 4 to 8 ounces (120-240 ml) of water or milk as soon as possible after ingestion.• Never give anything by mouth to an unconscious person
Note to physician	<p>Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. Treat symptomatically.</p>
Self-protection for first aid personnel	<p>Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.</p>

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	<ul style="list-style-type: none">• Dry chemical, CO₂, water spray or alcohol-resistant foam• Use extinguishing measures that are appropriate to local circumstances and the surrounding environment
Unsuitable extinguishing media	<ul style="list-style-type: none">• Caution: Use of water spray when fighting fire may be inefficient• Do not use a solid water stream as it may scatter and spread fire
Specific hazards arising from the chemical	<ul style="list-style-type: none">• The product causes burns of eyes, skin and mucous membranes• Thermal decomposition can lead to release of irritating and toxic gases and vapors• In the event of fire and/or explosion, do not breathe fumes

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- Protective equipment and precautions for firefighters** • Wear a self-contained breathing apparatus and chemical protective clothing
- Flammable properties** • No information available
- Explosive properties** • No information available

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions** • Evacuate personnel to safe areas
• Use personal protective equipment as required
• Avoid contact with skin, eyes or clothing
• Keep people away from and upwind of spill/leak
- Environmental precautions** • For small spills, absorb material with clay absorbent or other compatible material. Dispose of the waste material according to local, state and governmental requirements.
• For large spills, contain the material using barriers of absorbent pigs, clay absorbent or earth dams.
• US regulations require reporting spills of this material that could reach any surface waters. The toll-free phone number for the US Coast Guard National Response Center is 1-800-424-8802
- Methods for cleaning up** • Neutralize with soda ash or lime
• Take up mechanically, placing in appropriate containers for disposal
• Clean contaminated surface thoroughly
• Soak up with inert absorbent material
- Other Information** • Spills exceeding the Reportable Quantity (RQ) of 1000 pounds or more must be reported to the National Response Center, (800) 424-8802.

7. HANDLING AND STORAGE

- Advice on safe handling** • Use personal protective equipment as required
• Avoid contact with skin, eyes or clothing
• Ensure adequate ventilation, especially in confined areas
• In case of insufficient ventilation, wear suitable respiratory equipment
• Use only with adequate ventilation and in closed systems
- Storage Conditions** • Keep container tightly closed in a dry and well-ventilated place
• Keep out of the reach of children
• Keep containers tightly closed in a dry, cool and well-ventilated place
• Keep in properly labeled containers
- Incompatible materials** Incompatible with strong acids and bases, oxidizers, steel, and most metals

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Iron trichloride 7705-08-0	TWA: 1 mg/m ³ Fe	-	TWA: 1 mg/m ³ Fe
Hydrogen chloride 7647-01-0	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m ³	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m ³
Ferrous chloride 7758-94-3	TWA: 1 mg/m ³ Fe	(vacated) TWA: 1 mg/m ³ Fe	TWA: 1 mg/m ³ Fe

Exposure Guidelines

Engineering Controls Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Respiratory protection • A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant the use of a respirator.

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Eye/Face protection	<ul style="list-style-type: none">• Tight sealing safety goggles• Face protection shield
Skin and body protection	<ul style="list-style-type: none">• Wear suitable protective clothing• Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact
General Hygiene Considerations	<ul style="list-style-type: none">• Do not eat, drink or smoke when using this product• Wash contaminated clothing before reuse• Contaminated work clothing should not be allowed out of the workplace• Regular cleaning of equipment, work area and clothing is recommended• Avoid contact with skin, eyes or clothing

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear to slightly hazy
Color	Red brown
Odor	Slight Iron acidic
Odor threshold	No information available

Property	Values	Remarks • Method
pH	<2	
Melting point/Freezing Point	-26 °C / -15 °F	
Boiling point / boiling range	110 °C / 230 °F	
Flash point	No information available	
Evaporation rate	<1	n-Butyl acetate =1
Flammability (solid, gas)	No information available	
Flammability Limit in Air		Not flammable
Upper flammability limit (%)	No information available	
Lower flammability limit (%):	No information available	
Vapor pressure	No information available	negligible
Vapor density	No information available	
Specific Gravity	1.40	
Water solubility	Miscible in water	
Solubility in other solvents	No information available	
Partition coefficient	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Explosive properties	No information available	
Oxidizing properties	No information available	

Other Information

Softening point °C	No information available
Molecular weight	No information available
VOC Content (%)	No information available
Density	No information available
Bulk density	11.7 Pounds per gallon (lb/gal), Typical

10. STABILITY AND REACTIVITY

Stability	<ul style="list-style-type: none">• Stable under recommended storage conditions
Conditions to avoid	<ul style="list-style-type: none">• Exposure to air or moisture over prolonged periods
Incompatible materials	<ul style="list-style-type: none">• Incompatible with strong acids and bases, oxidizers, steel, and most metals

SDS-Ferric Chloride Solution DWG Grade

Hazardous Decomposition Products • Thermal decomposition can lead to release of irritating and toxic gases and vapors

Possibility of Hazardous Reactions • None under normal processing and storage

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principle Routes of Exposure Inhalation Skin Contact Eye contact
Inhalation May cause irritation of respiratory tract. Avoid breathing vapors or mists.
Ingestion May cause adverse kidney effects. May cause adverse liver effects.
Skin Contact Contact causes severe skin irritation and possible burns.
Eye contact Corrosive to the eyes and may cause severe damage including blindness.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Iron trichloride 7705-08-0	= 450 mg/kg (Rat)	>2000 mg/kg (rat)	-
Hydrogen chloride 7647-01-0	= 700 mg/kg (Rat)	> 5010 mg/kg (Rabbit)	= 3124 ppm (Rat) 1 h
Ferrous chloride 7758-94-3	450	-	-

Information on toxicological effects

Symptoms Vomiting, Hypoxemia (reduced O2 in the blood), Metabolic Acidosis

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.
Germ cell mutagenicity No information available.
Carcinogenicity No information available.

Chemical Name	ACGIH	IARC	NTP	OSHA
Hydrogen chloride 7647-01-0	-	Group 3	-	-

Reproductive toxicity No information available.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Chronic toxicity Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Avoid repeated exposure. Possible risk of irreversible effects. May cause adverse liver effects.
Target Organ Effects Eyes, Gastrointestinal tract (GI), Liver, Respiratory system, Skin.
Aspiration hazard No information available.

Numerical measures of toxicity - Product Information

Unknown Acute Toxicity 0.85% of the mixture consists of ingredient(s) of unknown toxicity
The following values are calculated based on chapter 3.1 of the GHS document . mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity Toxic to aquatic life with long lasting effects
0.85% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Iron trichloride 7705-08-0	-	20.95 - 22.56: 96 h Pimephales promelas mg/L LC50 semi-static 20.26: 96 h Lepomis macrochirus mg/L LC50 semi-static	27.9: 48 h Daphnia magna mg/L EC50 9.6: 48 h Daphnia magna mg/L EC50 Static

Persistence and degradability No information available.
Bioaccumulation No information available

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Chemical Name	Partition coefficient
Iron trichloride 7705-08-0	-4

Other adverse effects _____ No information available

13. DISPOSAL CONSIDERATIONS

- Disposal of wastes** • This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261)
- Contaminated packaging** • Do not reuse container
- US EPA Waste Number** • D002

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste Status
Iron trichloride 7705-08-0	Toxic Corrosive

14. TRANSPORT INFORMATION

DOT

- Proper shipping name** FERRIC CHLORIDE, SOLUTION
- Hazard Class** 8
- UN/ID No.** UN2582
- Packing Group** III
- RQ (lbs)(dry)** 1000
- RQ as is (lbs)(wet)** 2222 (45% Ferric Chloride)
- Description** UN2582, Ferric chloride, solution, 8, III
- Special Provisions** B15, IB3, T4, TP1
- Emergency Response Guide Number** 154

IATA

- UN/ID No.** UN2582
- Proper shipping name** FERRIC CHLORIDE SOLUTION
- Hazard Class** 8
- Packing Group** III
- ERG Code** 8L
- Special Provisions** A3

IMDG

- UN/ID No.** UN2582
- Proper shipping name** FERRIC CHLORIDE, SOLUTION
- Hazard Class** 8
- Packing Group** III
- EmS-No.** F-A, S-B
- Special Provisions** 223

15. REGULATORY INFORMATION

US Federal Regulations

SARA 311/312 Hazard Categories

- Acute health hazard** Yes
- Chronic Health Hazard** Yes
- Fire hazard** No
- Sudden release of pressure hazard** No
- Reactive Hazard** No

SARA 313 _____ Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

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CWA (Clean Water Act) This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Iron trichloride 7705-08-0	1000 lb	-	-	X
Hydrogen chloride 7647-01-0	5000 lb	-	-	X
Ferrous chloride 7758-94-3	100 lb	-	-	X

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	RQ (lbs)(dry)
Iron trichloride 7705-08-0	1000 lb	-	RQ 1000 lb final RQ RQ 454 kg final RQ
Hydrogen chloride 7647-01-0	5000 lb	5000 lb	RQ 5000 lb final RQ RQ 2270 kg final RQ
Ferrous chloride 7758-94-3	100 lb	-	RQ 100 lb final RQ RQ 45.4 kg final RQ

US State Regulations

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Iron trichloride 7705-08-0	X	X	X
Ferrous chloride 7758-94-3	X	X	X

Chemical Name	U.S. - DEA - List I or Precursor Chemicals	U.S.- DEA - List II or Essential Chemicals
Hydrogen chloride 7647-01-0	-	50 gallon, Export Volume 27 kg, Export Weight 0 kg, Domestic Sales Weight

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Does not comply
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

16. OTHER INFORMATION

SDS - Ferric Chloride Solution DWG Grade

<u>NFPA</u>	Health hazards	3	Flammability	0	Instability	0	Physical and Chemical Properties	-
<u>HMIS</u>	Health hazards	3	Flammability	0	Physical hazards	0	Personal protection	D
Issue Date		5/15/2015						
Version		1						

Disclaimer

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End of Safety Data Sheet

SAFETY DATA SHEET

POLYTEC PT-180

Section 1. Identification

GHS product identifier : ALUMINUM CHLORHYDRATE SOLUTION & POLYMER BLEND

Other means of identification : Not available.

Relevant identified uses of the substance or mixture and uses advised against

Not available.

Supplier's details : Polytec, Inc.
191 Barley Park Lane
Mooresville, NC 28115
704-660-5195

e-mail address of person responsible for this MSDS: customerservice@polytecinc.net

Emergency telephone number : CHEMTREC, U.S. : 1-800-424-9300 International: +1-703-527-3887
CCN# 17585

Section 2. Hazards identification

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture: Mixture

Other means of: Not available.

Identification:

CAS number/other identifiers

<u>Typical Composition</u>	<u>CAS #'s</u>	<u>%</u>
Aluminum Chlorohydrate	12042-91-0	50
Water	7732-18-5	Balance

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
- Skin contact** : Flush contaminated skin with plenty of water. Get medical attention if symptoms occur.
- Ingestion** : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

Section 4. First aid measures

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.
- Specific hazards arising from the chemical** : No specific fire or explosion hazard.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
halogenated compounds
metal oxide/oxides
- Special protective actions for fire-fighters** : No special measures are required.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Spill** : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8).
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls/personal protection

Respiratory protection : Use a properly fitted, air-purifying or supplied air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid.
Color : Colorless to light yellow.
Odor : None
Odor threshold : Not available.
pH : 4 to 5
Melting point : -7°C (19.4°F)
Boiling point : 110°C (230°F)
Flash point : Not applicable.
Burning time : Not applicable.
Burning rate : Not applicable.
Evaporation rate : Not available.
Flammability (solid, gas) : Not available.
Lower and upper explosive (flammable) limits : Not available.
Vapor pressure : Not available.
Vapor density : 1 [Air = 1]
Relative density : 1.33 to 1.35
Solubility : Easily soluble in the following materials: cold water and hot water.
Solubility in water : Not available.
Partition coefficient: n-octanol/water : Not available.
Auto-ignition temperature : Not available.
Decomposition temperature : Not available.
SADT : Not available.
Viscosity : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Section 10. Stability and reactivity

Incompatible materials : Reactive or incompatible with the following materials: oxidizing materials and metals.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

There is no data available.

Irritation/Corrosion

Skin : There is no data available.

Eyes : There is no data available.

Respiratory : There is no data available.

Sensitization

Skin : There is no data available.

Respiratory : There is no data available.

Mutagenicity

There is no data available.

Carcinogenicity

There is no data available.

Reproductive toxicity

There is no data available.

Teratogenicity

There is no data available.

Specific target organ toxicity (single exposure)

There is no data available.

Specific target organ toxicity (repeated exposure)

There is no data available.

Aspiration hazard

There is no data available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Section 11. Toxicological information

Eye contact	: No known significant effects or critical hazards.
Inhalation	: No known significant effects or critical hazards.
Skin contact	: No known significant effects or critical hazards.
Ingestion	: No known significant effects or critical hazards.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects	: No known significant effects or critical hazards.
Potential delayed effects	: No known significant effects or critical hazards.

Long term exposure

Potential immediate effects	: No known significant effects or critical hazards.
Potential delayed effects	: No known significant effects or critical hazards.

Potential chronic health effects

General	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

There is no data available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Aluminium Chlorohydrate Solution	Chronic EC50 6999 mg/L Chronic LC50 3623 mg/L	Daphnia - Daphnia magna Fish - Fathead Minnow	- -

Persistence and degradability

There is no data available.

Bioaccumulative potential

There is no data available.

Mobility in soil

Section 12. Ecological information

Soil/water partition coefficient (K_{oc}) : -2.49

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : TSCA 8(a) CDR Exempt/Partial exemption: Not determined
United States inventory (TSCA 8b): All components are listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

No products were found.

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : The following components are listed: Dialuminium Chloride Pentahydroxide

California Prop. 65

No products were found.

International regulations

International lists : **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: Not determined.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Section 15. Regulatory information

Chemical Weapons : Not listed
Convention List Schedule
II Chemicals

Chemical Weapons : Not listed
Convention List Schedule
III Chemicals

Section 16. Other information

History

Date of issue mm/dd/yyyy : 06/15/2014
Version : 1
Revised Section(s) : Not applicable.
Prepared by : KMK Regulatory Services Inc.
Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships,
1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY

Product name: Polytec PT-516

Company: Polytec, Inc.
191 Barley Park Lane
 Mooresville, NC 28115

Telephone: 704-660-5195
Telefax: 704-662-3498
E-mail: customerservice@polytecinc.net

Emergency telephone number: 800-424-9300 CHEMTREC (CCN 17585), Outside U.S. 703-527-3887

Product Use: Processing aid for industrial applications.

2. HAZARDS IDENTIFICATION

Appearance and Odor:

Form: Viscous liquid

Color: Milky

Odor: Aliphatic

Potential Health Effects:
See Section 11 for more information.

Eye: May cause slight irritation.

Potential Physical/Chemical Effects:
Spills produce extremely slippery surfaces.

OSHA Regulatory Status:
This material is not considered hazardous in accordance with OSHA 29 CFR 1910.1200.

Potential Environmental Effects:
None. See Section 12 for more information.

Other information No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Identification:

anionic water-soluble polymer in emulsion

Regulated Components:

Chemical Name	CAS Number:	Concentration/ -range:
Distillates (petroleum), hydrotreated light	64742-47-8	20 - 45%
Poly(oxy-1,2-ethanediyl), a-tridecyl-w-hydroxy-, branched	69011-36-5	< 5%

4. FIRST AID MEASURES

Inhalation: Move to fresh air immediately.

Skin contact: Wash off immediately with soap and plenty of water. In case of persistent skin irritation, consult a physician.

Eye contact: Rinse thoroughly with plenty of water, also under the eyelids. Get medical attention.

Ingestion: Rinse mouth with water. Do not induce vomiting. Call a physician immediately.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media: Carbon dioxide (CO₂). Dry powder. Water. Water spray. Foam.

Unsuitable extinguishing media: None.

Precautions: Spills produce extremely slippery surfaces.

Special protective equipment for firefighters: Wear self-contained breathing apparatus and protective suit.

Specific methods: Keep personnel removed and upwind of fire.

Specific hazards: In the event of fire the following can be released: Carbon Oxides. Nitrogen Oxides. Hydrogen cyanide (hydrocyanic acid) may be produced in the event of combustion in an oxygen deficient atmosphere.

Flash point (°C): Does not flash.

Autoignition temperature (°C): Not determined.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: No special precautions required. Wear adequate personal protective equipment (see Section 8 Exposure Controls/Personal Protection). Spills produce extremely slippery surfaces. Keep people away from spill/leak.

Environmental precautions: As with all chemical products, do not flush into surface water.

Methods for cleaning up: Do not flush with water. Dam up. Soak up with inert absorbent material. If liquid has been spilt in large quantities clean up promptly by scoop or vacuum. Keep in suitable and closed containers for disposal. After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Handling: Avoid contact with skin and eyes. When preparing the working solution ensure there is adequate ventilation. When using do not smoke. Wear adequate personal protective equipment (see Section 8 Exposure Controls/Personal Protection).

Storage: Keep in a dry cool place (0 - 30 °C). Keep away from heat and sources of ignition. Freezing will affect the physical condition and may damage the material.

Technical measures/Precautions: No special precautions required.

Incompatible products: Oxidizing agents may cause exothermic reactions.

Technical measures/Storage conditions: No special storage conditions required.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures: Use local exhaust if misting occurs. Natural ventilation is adequate in absence of mists.

Personal protective equipment:

Respiratory protection: Not required ; except in case of aerosol formation.

Hand protection: PVC or other plastic material gloves.

Eye protection: Safety glasses with side-shields. Do not wear contact lenses where this product is used.

Skin and body protection: Chemical resistant apron or protective suit if splashing or repeated contact with solution is likely.

Hygiene measures: Wash hands before breaks and at the end of workday. When using do not eat, drink or smoke. Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Viscous liquid
Color:	Milky
Odor:	Aliphatic
pH:	5 - 8 @ 5 g/L
Specific Gravity:	1.0 - 1.1
Melting point/range (°C):	< 5
Flash point (°C):	Does not flash.
Boiling point (°C):	> 100
Autoignition temperature (°C):	Not determined.
Vapor pressure (mm Hg):	2.3 kPa @ 20°C
Viscosity (mPa.s):	See Technical Bulletin
Water solubility:	Completely miscible
LogPow:	Not applicable.
Kinematic viscosity @ 40°C (mm²/s):	> 20.5

10. STABILITY AND REACTIVITY

Conditions to avoid: Avoid extremes of temperature. Protect from light, moisture and damage.

Stability: Stable. Hazardous polymerisation does not occur.

Materials to avoid: Oxidizing agents may cause exothermic reactions.

Hazardous decomposition products: Thermal decomposition may produce: nitrogen oxides (NO_x), carbon oxides (CO_x), hydrogen cyanide (hydrocyanic acid).

11. TOXICOLOGICAL INFORMATION

Product Information

Acute toxicity:

Oral: LD50/oral/rat > 5000 mg/kg

Dermal: LD50/dermal/rat > 5000 mg/kg

Inhalation: The product is not expected to be toxic by inhalation.

Irritation:

Skin: Not irritating.

Eyes: May cause slight eye irritation.

Sensitization: Not sensitizing.

Mutagenicity: Not mutagenic.

Carcinogenicity: Not carcinogenic.

Reproductive effects: Not toxic for reproduction.

Chronic toxicity: No chronic effects.

Other information: Due to the viscosity, this product does not present an aspiration hazard.

Component Information

Distillates (petroleum), hydrotreated light

Acute toxicity:

Oral: LD50/oral/rat > 5000 mg/kg (OECD 401)

Dermal: LD50/dermal/rabbit > 5000 mg/kg (OECD 402)

Inhalation: LC50/inhalation/4 h/rat = 4951 mg/m³ (OECD 403)

Irritation:

Skin: Not irritating. (OECD 404) Repeated exposure may cause skin dryness or cracking

Eyes: Not irritating. (OECD 405)

Sensitization: By analogy with similar products, this product is not expected to be sensitizing. (OECD 406)

Mutagenicity: Not mutagenic. (OECD 471, 473, 474, 476, 478, 479)

Carcinogenicity: Carcinogenicity study in rats (OECD 451): Negative

Reproductive effects: By analogy with similar substances, this substance is not expected to be toxic for reproduction.
NOAEL/rat = 300 ppm (OECD 421)

Chronic toxicity: No chronic effects.

Other information: May be fatal if swallowed and enters airways.

Poly(oxy-1,2-ethanediyl), a-tridecyl-w-hydroxy-, branched

Acute toxicity:

Oral: LD50/oral/rat = 200 - 300 mg/kg

Dermal: LD50/dermal/rabbit > 2000 mg/kg

Inhalation: No data available.

Irritation:

Skin: Not irritating.

Eyes: Causes serious eye irritation

Sensitization: The results of testing on guinea pigs showed this material to be non-sensitizing.

Mutagenicity: Not mutagenic.

Carcinogenicity: Not carcinogenic.

Reproductive effects: Two-Generation Reproduction Toxicity (OECD 416)
NOAEL/rat > 250 mg/kg/day Prenatal Development Toxicity Study (OECD 414)
NOAEL/Maternal toxicity/rat > 50 mg/kg/day
NOAEL/Developmental toxicity/rat > 50 mg/kg/day

Chronic toxicity: NOAEL/oral/rat/600 days = 50 mg/kg/day

12. ECOLOGICAL INFORMATION

Product Information

Aquatic toxicity:

Toxicity to fish: LC50/Fish/96 hours > 100 mg/L

Toxicity to daphnia: EC50/Daphnia/48 hours > 100 mg/L

Toxicity to algae: IC50/Algae/72 hours > 100 mg/L

Environmental fate:

Persistence and degradability: Not readily biodegradable.

Hydrolysis: Does not hydrolyse.

Bioaccumulation: The product is not expected to bioaccumulate.

LogPow: Not applicable.

LogKow: Not determined.

Component Information

Distillates (petroleum), hydrotreated light

Acute toxicity to fish:

Toxicity to fish: LC0/Oncorhynchus mykiss/96 hours > 1000 mg/L (OECD 203)

Toxicity to daphnia: EC0/Daphnia magna/48 hours > 1000 mg/L (OECD 202)

Toxicity to algae: IC0/Pseudokirchneriella subcapitata/72 hours > 1000 mg/L (OECD 201)

Environmental fate:

Persistence and degradability: Readily biodegradable.

Hydrolysis: Does not hydrolyse.

Bioaccumulation: The product is not expected to bioaccumulate.

LogPow: 3 - 6

LogKow: Not determined.

Poly(oxy-1,2-ethanediyl), a-tridecyl-w-hydroxy-, branched

Toxicity to fish: LC50/Cyprinus carpio/96 hours = 1 - 10 mg/L (OECD 203)

Toxicity to daphnia: EC50/Daphnia/48 hours = 1 - 10 mg/L (OECD 202)

Toxicity to algae: IC50/Desmodesmus subspicatus/72 hours = 1 - 10 mg/L (OECD 201)

Environmental fate:

Persistence and degradability: Readily biodegradable. > 60% / 28 days (OECD 301 B)

Hydrolysis: Does not hydrolyse.

Bioaccumulation: No data available

LogPow: > 3

LogKow: Koc > 5000

13. DISPOSAL CONSIDERATIONS

Disposal: Dispose of in accordance with local, state and federal regulations.

Container: Rinse empty containers with water and use the rinse water to prepare the working solution. Can be landfilled or incinerated, when in compliance with local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT:

Not classified as dangerous in the meaning of DOT regulations.

IMDG/IMO:

Not classified as dangerous in the meaning of IMO/IMDG regulations.

ICAO/IATA:

Not classified as dangerous in the meaning of ICAO/IATA regulations.

15. REGULATORY INFORMATION

Product Information

US SARA Reporting Requirements: None.

RCRA status : Not RCRA hazardous.

SARA (Section 311/312) hazard class: Not concerned.

California Proposition 65 Information: WARNING! This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm, Acrylamide.

International Inventories:

USA (TSCA): All components of this product are either listed on the inventory or are exempt from listing.

Canada (DSL): All components of this product are either listed on the inventory or are exempt from listing.

China (IECSC): All components of this product are either listed on the inventory or are exempt from listing.

European Union (REACH): All components of this product have been registered or pre-registered with the European Chemicals Agency or are exempt from registration.

Australia (AICS): All components of this product are either listed on the inventory or are exempt from listing.

Japan (ENCS): All components of this product are either listed on the inventory or are exempt from listing.

Korea (ECL): All components of this product are either listed on the inventory or are exempt from listing.

Philippines (PICCS): All components of this product are either listed on the inventory or are exempt from listing.

Taiwan (CSNN): All components of this product are either listed on the inventory or are exempt from listing.

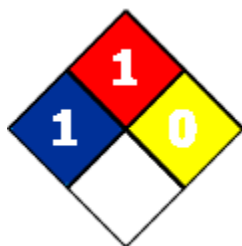
New Zealand (NZIoC): All components of this product are either listed on the inventory or are exempt from listing.

16. OTHER INFORMATION

NFPA and HMIS Ratings :

NFPA:

Health:	1
Flammability:	1
Instability:	0



HMIS:

Health:	1
Flammability:	1
Physical Hazard:	0
PPE Code:	B

This MSDS was prepared in accordance with the following:

ISO 11014-1: Material Safety Data Sheet for Chemical Products

ANSI Z400.1-2004; Material Safety Data Sheets - Preparation

Revision Number: 14.01a

ENAC001

The data in this Material Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process. This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained. This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.



SAFETY DATA SHEET

COMPANY IDENTITY: EP CHEMICAL
PRODUCT IDENTITY: HACHA

SDS DATE: 05/01/2023

This Safety Data Sheet conforms to ANSI Z400.5, and to the format requirements and the International Chemical Safety Cards of the Global Harmonizing System.

THIS SDS COMPLIES WITH CFR 1910.1200 (HAZARD COMMUNICATIONS STANDARD)

IMPORTANT: Read this SDS before handling & disposing of this product.

Pass this information on to employees, customers, & users of this product.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTITY: HACHA
SDS NUMBER: CR8254
COMPANY IDENTITY: EP CHEMICAL
COMPANY ADDRESS: 591 J ST WASCO, CA. 93280
COMPANY PHONE: 800-767-9112
EMERGENCY PHONES: CHEMTREC: 1-800-424-9300 (USA)
CANUTEC: 1-613-996-6666 (CANADA)



SECTION 2. HAZARDS IDENTIFICATION

HAZARD STATEMENTS:

H100s = General, H200s = Physical, H300 = Health, H400s = Environmental

H315 May cause skin irritation.
H320 Causes eye irritation.
H335 Inhalation of mist may cause mucous membrane and respiratory irritation.

PRECAUTIONARY STATEMENTS:

P100s = General, P200s = Prevention, P300s = Response, P400s = Storage, P500s = Disposal

P262 Do not get in eyes, on skin, or on clothing.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present & easy to do – Continue rinsing.
P309+311 If exposed or you feel unwell: Call a POISON CENTER or doctor/physician.
P405+102 Store locked up. Keep out of reach of children.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS#
Water	7732-18-5
Aluminum Chlorhydrate	12042-91-0
Proprietary Compound	-----



Trace components: Trace ingredients (if any) are present in < 1% concentration, (< 0.1% for potential carcinogens, reproductive toxins, respiratory tract mutagens, and sensitizers). None of the trace ingredients contribute significant Additional hazards at the concentrations that may be present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalents, and Canadian Hazardous Materials Identification System Standard (CPR 4).

SECTION 4. FIRST AID MEASURES

EYE CONTACT:

If this product enters the eyes, open eyes while under gently running water. Use sufficient force to open eyelids. Roll eyes to expose more surface. Minimum flushing is for 15 minutes. Seek immediate medical attention.

SKIN CONTACT:

If the product contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove contaminated clothing, taking care not to contaminate eyes. If skin becomes irritated and irritation persists, medical attention may be necessary. Wash contaminated clothing before reuse, discard contaminated shoes.

INHALATION:

Move person to fresh air, if effects occur, consult a physician.

SWALLOWING:

If swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, give two glasses of water to drink. **DO NOT INDUCE VOMITING.** Never induce vomiting or give liquids to someone who is unconscious, having convulsions, or unable to swallow. Seek immediate medical attention.

NOTES TO PHYSICIAN:

There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Any material aspirated during vomiting may cause lung injury. Therefore, emesis should be induced mechanically or pharmacologically. If it is considered necessary to evacuate the stomach contents, this should be done by means least likely to cause aspiration (such as: Gastric lavage after endotracheal intubation). Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take a copy of the label and SDS to physician or health professional with victim.

SECTION 5. FIRE FIGHTING MEASURES

FIRE & EXPLOSIONS PREVENTIVE MEASURES: None.

EXTINGUISHING MEDIA:

Use media appropriate for surrounding fire. Cool fire exposed containers and structures with water.

SPECIAL FIRE FIGHTING PROCEDURES: None.

UNUSUAL EXPLOSION AND FIRE PROCEDURES: None.

FLASH POINT: None.

AUTOIGNITION TEMPERATURE: None.



SECTION 6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE AND ENVIRONMENTAL PRECAUTIONS:

Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel.

PERSONAL PRECAUTIONS:

Spilled material may cause a slipping hazard. Isolate area. Keep unnecessary and unprotected personnel from entering the area. Use appropriate safety equipment.

ENVIRONMENTAL PRECAUTIONS:

Stop spill at source. Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material. Close or cap valves and/or block or plug hole in leaking container and transfer to another container, keep from entering storm sewers and ditches which lead to waterways, and if necessary, call the local fire or police department for immediate emergency assistance.

CONTAINMENT AND CLEAN-UP MEASURES:

Absorb spilled liquid with poly pads or other suitable absorbent materials. Clean up with non-combustible absorbent (such as: sand, soil, and so on). Shovel up and place all spill residue in suitable containers. Dispose of at an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal (see Section 13- Disposal Considerations).

SECTION 7. HANDLING AND STORAGE

HANDLING:

Product shipped/handled hot can cause thermal burns. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling.

STORAGE:

Store in a cool, dry, well-ventilated area away from heat and incompatible materials. Protect from physical damage.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

MATERIAL	CAS#	TWA (OSHA)	TLV (ACGIH)
Water	7732-18-15	None Known	None Known
Aluminum Chlorhydrate	12042-91-0	2 mg/m ³	2 mg/m ³
Proprietary Compound	-----	None Known	None Known

MATERIAL	CAS#	CEILING	STEL (OSHA/ACGIH)	HAP
Aluminum Chlorhydrate	12042-91-0	N/A	None Known	No

This product contains no EPA Hazardous Air Pollutants (HAP) in amounts > 0.1%.

RESPIRATORY EXPOSURE CONTROLS:

A respiratory protective program that meets OSHA CFR 1910.134 and ANSI Z86.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

**VENTILATION:**

LOCAL EXHAUST: None

MECHANICAL (General): None

SPECIAL: None

OTHER: None

Please refer to ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

PERSONAL PROTECTION:

Wear OSHA Standard full face shield. Consult Safety Equipment Supplier. Wear goggles, face shield, gloves, apron & footwear impervious to material. Wash clothing before reuse.

WORK & HYGIENIC PRACTICES:

Provide readily accessible eye wash stations & safety showers. Wash at the end of each work shift & before eating, smoking or using the toilet. Promptly remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

SECTION 9. PHYSICAL & CHEMICAL PROPERTIES:

APPEARANCE:	Clear to straw colored liquid.
ODOR:	Odorless
ODOR THRESHOLD:	Not Available
pH (Neutrality):	3.5-4.5
MELTING POINT/FREEZING POINT:	-16°C
BOILING RANGE (IBP, 50%, Dry Point):	101°C (212°F)
FLASH POINT (TEST METHOD):	None
EVAPORATION RATE (n-BUTYL ACETATE=1):	Not Applicable
FLAMMABILITY CLASSIFICATION:	Non-Combustible
LOWER FLAMMABLE LIMIT IN AIR (% by vol):	Not Applicable
UPPER FLAMMABLE LIMIT IN AIR (% by vol):	Not Available
VAPOR PRESSURE (mm of Hg)@20 C:	Not Available
VAPOR DENSITY (air = 1):	Not Available
SPECIFIC GRAVITY (Water = 1):	1.33-1.36
POUNDS/GALLON:	11.259
WATER SOLUBILITY:	Complete
VISCOSITY (mPa.s):	N/A
AUTO IGNITION TEMPERATURE:	None
DECOMPOSITION TEMPERAURE:	Not Available

SECTION 10. STABILITY & REACTIVITY**STABILITY:**

Stable under most conditions.

CONDITIONS TO AVOID:

Isolate from extreme heat, and open flame.

MATERIALS TO AVOID:

Oxidizing materials can cause a reaction. Caustics will precipitate aluminum hydroxide.

HAZARDOUS DECOMPOSITION PRODUCTS:

Chlorine compounds, metal oxides.



HAZARDOUS POLYMERIZATION:

Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

No Data Available

CONDITIONS AGGRAVATED:

None Known.

CHRONIC HAZARDS

CHRONIC TOXICITY:

In animals, effects have been reported on the following organs after ingestions: Gastrointestinal tract, heart, and kidney. Does levels producing these effects were many time a strong association between elevated blood pressure and prolonged dietary overuse. Related effects could occur in the kidneys.

CARCINOGENICITY:

This product is not classified as a carcinogen by NTP, IARC or OSHA.

MUTAGENIC DATA:

In vitro genetic toxicity studies were negative.

DEVELOPMENTAL TOXICITY:

Did not cause birth defects or any other fetal effects in laboratory animals.

SECTION 12. ECOLOGICAL INFORMATION

PIMELPHALES PROMELAS:

LC50/HRS: 1056 mg/L 24 hrs. 832 mg/L 48 hrs. 684 mg/L 72 hrs. 609 mg/L 96 hrs.

DAPHNIA MAGNA:

LC50/HRS: 642 mg/L 24 hrs. 397 mg/L 48 hrs.

BIOACCUMULATION:

Does not bioaccumulate.

SECTION 13. DISPOSAL CONSIDERATIONS

Processing, use or contamination may change the waste management options. Recycle / dispose of observing national, regional, state, provincial and local health, safety & pollution laws. If in doubt, contact appropriate agencies.



SECTION 14. TRANSPORT INFORMATION

UN/NA: N/A

Classification: NON-REGULATED

Proper Shipping Name: LIQUID NON-REGULATED

D.O.T Hazard Name (49CFR 172.101): NONE

D.O.T. ID Number (49CFR 172.101): NONE

D.O.T. Hazard Class (49CFR 172.101): Non D.O.T. Regulated

RCRA Hazard Class (40cfr261) (If discarded): NONE

E.P.A. Priority pollutants (40CFR 122.53): NONE

HAZARD RATINGS:

HEALTH (NFPA): 1, HEALTH (HMIS): 1, FLAMMABILITY: 0, PHYSICAL HAZARD: 0
(Personal Protection Rating to be supplied by user based on use conditions.)

This information is intended solely for the use of individuals trained in the NFPA & HMIS hazard rating system.

SECTION 15. REGULATORY INFORMATION:

TSCA Chemical Substances Inventory:

All components of this product are either listed on the inventory or exempt from listing.

California Proposition 65 Information:

This product contains no listed substances known to the state of California to cause cancer, birth defects or other reproductive harm.



NOTICE

All information, recommendations, and suggestions appearing herein concerning this product are based upon data obtained from the manufacturer and/or recognized technical sources; however, EP CHEMICAL makes no warranty, representation, or guaranty as to the accuracy, sufficiency or completeness of the material set forth herein. It is the user's responsibility to determine the safety, toxicity and suitability of his own use, handling, and disposal of the product. Additional product literature may be available upon request. Since actual use by others is beyond our control, no warranty, express or implied is made by EP CHEMICAL as to the effects of such use, the results to be obtained or the safety and toxicity of the product nor does EP CHEMICAL assume any liability arising out of use by others of this product.

[Back to HS-200 page](#)

HS-200

Media to Remove Oil, Heavy Metals and Similar Organics from Water Safety Data Sheet

Revision date : 2017

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 - Product Identifier

Product Name: HS-200

1.2 - Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Filtration

1.3 - Details of the supplier of the safety data sheet

Hydrosil International Ltd.
125 Prairie Lake Rd
East Dundee, IL 60118

T 847-844-0680 - F 847-844-0799
www.hydrosilintl.com

1.4 - Emergency telephone number

Emergency number : 1-847-844-0680

Section 2: Hazards Identification

2.1 - Classification of the substance or mixture

GHS-US classification
Eye Dam. 1 H318
STOT SE 3 H335

2.2 - Label Elements

GHS-US labeling
Hazard pictograms (GHS-US) :



Signal word (GHS-US) : Danger

Hazard statements (GHS-US) :

H318 - Causes serious eye damage
H335 - May cause respiratory irritation

Precautionary statements (GHS-US) :

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER/doctor/...
P312 - Call a POISON CENTER/doctor/.../if you feel unwell
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to ...

2.3 - Other Hazards

No additional information available

2.4 - Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/information on ingredients

3.1 - Substances

Not applicable

3.2 - Mixture

Name	Product Identifier	%	GHS-US Classification
Zeolite	(CAS No.) 1318-02-1	85.2 - 86.2	STOT SE 3, H335
Water	(CAS No.) 7732-18-5	8.4 - 11.4	Not classified
N,N,N-Trimethyl-1-hexadecanaminium chloride	(CAS No.) 112-02-7	3.4 - 5.4	Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Acute 1, H400

SECTION 4: First aid measures

4.1 - Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air. If not breathing, administer CPR or artificial respiration. Get immediate medical attention.

First-aid measures after skin contact : If skin reddening or irritation develops, seek medical attention.

First-aid measures after eye contact : Immediately flush eyes with plenty of water for at least 15 minutes. If irritation persists get medical attention.

First-aid measures after ingestion : If the material is swallowed, get immediate medical attention or advice. DO NOT induce vomiting unless directed to do so by medical personnel.

4.2 - Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause respiratory irritation.

Symptoms/injuries after skin contact : Causes skin irritation.

Symptoms/injuries after eye contact : Causes serious eye irritation.

Symptoms/injuries after ingestion : May be harmful if swallowed.

4.3 - Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1 - Extinguishing media

Suitable extinguishing media : If involved with fire, flood with plenty of water.

Unsuitable extinguishing media : None.

5.2 - Special hazards arising from the substance or mixture

Fire hazard : None known.

Explosion hazard : None known.

5.3 - Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1 - Personal precautions, protective equipment and emergency procedures

General measures : Avoid contact with the skin and the eyes.

For non-emergency personnel : No additional information available

For emergency responders : No additional information available

6.2 - Environmental precautions

None.

6.3 - Methods and material for containment and cleaning up

For containment : If possible, stop flow of product.

Methods for cleaning up : Shovel or sweep up and put in a closed container for disposal.

6.4 - Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1 - Precautions for safe handling

Precautions for safe handling : Wet carbon/coal removes oxygen from air causing a severe hazard to workers inside carbon vessels or confined spaces.

7.2 - Conditions for safe storage, including any incompatibilities

Storage conditions : Protect containers from physical damage. Store in dry, cool, well-ventilated area.

7.3 - Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1 - Control parameters

No additional information available

8.2 - Exposure controls

Appropriate engineering controls : Local exhaust and general ventilation must be adequate to meet exposure standards.

Hand protection : Use impervious gloves.

Eye protection : Safety glasses.

Skin and body protection : Wear suitable working clothes.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1 - Information on basic physical and chemical properties

Physical state : Solid

Appearance : Irregular shaped.

Color : White

Odor : No data available

Odor threshold : No data available

pH : No data available

Relative evaporation rate (butyl acetate=1) : No data available

Melting point : No data available

Freezing point : No data available

Boiling point : No data available

Flash point : No data available

Self ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : No data available

Vapor pressure : No data available

Relative vapor density at 20 °C : No data available

Relative density : 57-59 lb/ft³

Solubility : No data available

Log Pow : No data available

Log Kow : No data available

Viscosity, kinematics : No data available

Viscosity, dynamic : No data available

Explosive properties : No data available

Oxidizing properties : No data available

Explosive limits : No data available

9.1 - Other information

No additional information available

SECTION 10: Stability and Reactivity

10.1 - Reactivity

No additional information available

10.2 - Chemical stability

Stable under normal conditions.

10.3 - Possibility of hazardous reactions

Will not occur

10.4 - Conditions to avoid

None

10.5 - Incompatible materials

Strong oxidizing and reducing agents.

10.6 - Hazardous decomposition products

Organic chlorides, amines, hydrogen chloride may be produced.

SECTION 11: Toxicological information

11.1 - Information on toxicological effects

Acute toxicity : Not classified

Zeolite (1318-02-1)	
LD50 oral rat	5000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat (mg/l)	2.4 mg/l (Exposure time: 1 h)
ATE (oral)	5000 mg/kg

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Zeolite (1318-02-1)	
IARC group	3

Reproductive toxicity : Not classified
 Specific target organ toxicity (single exposure) : May cause respiratory irritation.
 Specific target organ toxicity (repeated exposure) : Not classified
 Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1 - Toxicity

Zeolite (1318-02-1)	
LC50 fishes 1	1800 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [semi-static])
EC50 Daphnia 1	1000 - 1800 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 other aquatic organisms 1	18 mg/l (Exposure time: 96 h - Species: Desmodemus subspicatus)
LC50 fish 2	3200 - 5600 mg/l (Exposure time: 96 h - Species: Oryzias latipes [semi-static])

12.2 - Persistence and degradability

No additional information available

12.3 - Bioaccumulative potential

No additional information available

12.4 - Mobility in soil

No additional information available

12.5 - Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1 - Waste treatment methods

Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

In accordance with DOT / ADR / RID / ADN / IMDG / ICAO / IATA

14.1 - UN number

Not applicable

14.2 - UN proper shipping name

Not applicable

SECTION 15: Regulatory information

15.1 - US Federal regulations

15.2 - US State regulations

No additional information available

SECTION 16: Other information

Full text of H-phrases:

Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Irrit. 2	skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H315	Causes skin irritation
H318	Causes serious eye damage
H335	May cause respiratory irritation
H400	Very toxic to aquatic life

NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.
 NFPA fire hazard : 0 - Materials that will not burn.
 NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water

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HS-300

HS-300 Safety Data Sheet


Revision date : 2022

Section 1: Product and Company Information

Product Name	Product Type	Manufacturer ID	Emergency Phone Number	Address	Common Use of Product
HS-300	Modified Organoclay	Hydrosil International Ltd.	847-844-0680	125 Prairie Lake Rd. East Dundee, IL 60018	Filtration

Section 2: Hazard(s) Identification

2.1 Classification of the substance or mixture (GHS-US)

Pictogram	Signal Word	Hazard Statement
	Warning	Eye Irritation 2B H320; Acute Oral Tox 4, H302; Respiratory Irritation H335

2.2 Precautionary statements (GHS-US) :

- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking
- P220 Keep/Store away from clothing/combustible materials
- P221 Take any precaution to avoid mixing with combustibles
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray
- P271 Use only outdoors or in a well-ventilated area
- P280 Wear protective gloves/protective clothing/eye protection/face protection
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
- P312 Call a POISON CENTER/doctor if you feel unwell
- P370+P378 In case of fire: Use for extinction
- P403+P233 Store in a well-ventilated place. Keep container tightly closed
- P405 Store locked up
- P501 Dispose of contents/container

2.3 Other Hazards

No additional information available

2.4 Unknown acute toxicity (GHS US)

No data available

Section 3: Composition/Information on Ingredients

Name	Product Identifier	Percent By Weight (%)	GHS-US Classification
Zeolite	(CAS No.) 1318-02-1	79.5-81.5	STOT SE 3, H335
Water	(CAS No.) 7732-18-5	12.5-14.5	Not Classified
Proprietary Active Ingredient		3.0-3.8	Not Classified

Section 4: First-Aid Measures

4.1 Description of first aid measures

Inhalation First Aid	Remove person to fresh air. If not breathing, administer CPR or artificial respiration. Seek immediate medical attention.
Skin Contact First Aid	If skin reddening or irritation develops, seek medical attention.
Eye Contact First Aid	Immediately flush eyes with plenty of water for at least 15 minutes. If irritation persists seek medical attention.
Ingestion First Aid	If the material is swallowed, rinse mouth thoroughly. DO NOT induce vomiting unless directed to do so by medical personnel. Seek medical attention if large amounts are ingested.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause respiratory irritation.

Symptoms/injuries after skin contact : Causes skin irritation.

Symptoms/injuries after eye contact : Causes eye irritation.

Symptoms/injuries after ingestion : May be harmful if swallowed.

4.3 Indication of any immediate medical attention and special treatment needed

No additional information available

Section 5: Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

5.2 Special hazards arising from the substance or mixture

Fire hazard : None known.

Explosion hazard : None known.

5.3 Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear (chemical protective clothing and breathing apparatus).

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

General measures : Avoid contact with the skin and the eyes.

For non-emergency personnel : No additional information available

For emergency responders : No additional information available

6.2 Environmental precautions

None.

6.3 Methods and material for containment and cleaning up

For containment : If possible, stop flow of product.

Methods for cleaning up : Shovel or sweep up and put in a closed container for disposal.

6.4 Reference to other sections

No additional information available

Section 7: Handling and Storage

7.1 Precautions for safe handling

Avoid generation of dust.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions : Protect containers from physical damage. Keep container tightly closed and store in dry, cool, well-ventilated area. Protect material from water and contaminated gases.

7.3 Specific end use(s)

No additional information available

Section 8: Exposure Controls/Personal Protection

8.1 Control parameters

No additional information available

8.2 Exposure controls/Person Protection

Appropriate engineering controls : Local exhaust and general ventilation must be adequate to meet exposure standards.

Hand protection : Use impervious gloves to minimize skin contact.

Eye protection : Safety glasses.

Skin and body protection : Wear suitable working clothes.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state : Solid

Appearance : Granules

Colour : White

Odour : No data available

Odour threshold : No data available

pH : No data available

Relative evaporation rate (butylacetate=1) : No data available

Melting point : No data available

Freezing point : No data available

Boiling point : No data available

Flash point : No data available

Self ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : No data available

Vapour pressure : No data available

Relative vapour density at 20 °C : No data available

Relative density : 57-59 lb/ft³

Solubility : No data available

Log Pow : No data available

Log Kow : No data available

Viscosity, kinematic : No data available

Viscosity, dynamic : No data available

Explosive properties : No data available

Oxidising properties : No data available

Explosive limits : No data available

Section 10: Stability and Reactivity

10.1 Reactivity

No additional information available.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

None.

10.4 Conditions to avoid

Strong oxidizing and reducing agents.

10.5 Incompatible materials

Strong oxidizers such as ozone, liquid oxygen, chlorine, etc.

10.6 Hazardous decomposition products

Organic chlorides, amines, hydrogen chloride may be produced.

Section 11: Toxicological Information

11.1 Information on toxicological effects

Acute toxicity : Not classified

Zeolite (CAS No. 1318-02-1)	
LD50 Oral Rat	5000 mg/kg
LD50 Dermal Rabbit	>2000 mg/kg
LC50 Inhalation Rat	2.4 mg/l (Exposure Time: 1Hr)
ATE (Oral)	5000 mg/kg

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Zeolite (CAS No. 1318-02-1) IARC Group: 3

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Section 12: Ecological Information

12.1 Toxicity

Zeolite (CAS No. 1318-02-1)	
LC50 Fishes 1	1800 mg/l (Exposure time: 96 h Species: Brachydanio rerio [semi-static])
EC50 Daphnia 1	1000 1800 mg/l (Exposure time: 48 h Species: Daphnia magna)
EC50 Other Aquatic Organisms 1	18 mg/l (Exposure time: 96 h Species: Desmodesmus subspicatus)
LC50 Fish 2	3200 5600 mg/l (Exposure time: 96 h Species: Oryzias latipes [semi-static])

12.2 Persistence and degradability

No additional information available

12.3 Bioaccumulative potential

No additional information available

12.4 Mobility in soil

No additional information available

12.5 Other adverse effects

No additional information available

Section 13: Disposal Considerations

13.1 Waste treatment methods

Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14: Transport Information

In accordance with DOT / ADR / RID / ADNR / IMDG / ICAO / IATA

14.1 UN number

Not applicable

14.2 UN proper shipping name

Not applicable

Section 15: Regulatory Information

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

15.1 US Federal regulations

OSHA: This product is not known to be hazardous by OSHA Highly Hazardous Process Safety Standard, 29 CFR 1910.119.

CERCLA/SARA Hazardous Substances: Not applicable.

15.2 US State regulations

Review specific state regulations.

Section 16: Other Information

Full text of H-phrases:

Eye Dam. 1	Series eye damage/eye irritation Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Skin Corr. 1A	Skin corrosion/irritation Category 1A
Skin Irrit. 2	Skin corrosion/irritation Category 2
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

NFPA health hazard : 1 Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard : 0 Materials that will not burn

NFPA reactivity : 0 Normally stable, even under fire exposure conditions, and are not

reactive with water

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HS-ACC

Coal Based Activated Carbon Safety Data Sheet


Revision date : 2023

Section 1: Product and Company Information

Product Name: HS-ACC
Product Type: Coal Based Activated Carbon
Manufacturer ID: Hydrosil International Ltd.
Emergency Phone Number: 847-844-0680
Address: 125 Prairie Lake Rd. East Dundee, IL 60118

Section 2: Hazard(s) Identification

2.1 Classification of the substance or mixture (GHS-US)

Pictogram	Signal Word	Hazard Statement
	Warning	Eye Irritation 2B H320; Acute Oral Tox 4, H302; Respiratory Irritation H335

2.2 Precautionary statements (GHS-US) :

P261: Avoid breathing dust/fume/gas/mist/vapours/spray
P264: Wash & thoroughly after handling
P271: Use only outdoors or in a well-ventilated area
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312: Call a POISON CENTER/doctor/&/if you feel unwell
P337+P313: If eye irritation persists: Get medical advice/attention
P403+P233: Store in a well-ventilated place. Keep container tightly closed
P405: Store locked up
P501: Dispose of contents/container to &

2.3 Other Hazards

No additional information available

2.4 Unknown acute toxicity (GHS US)

No data available

Section 3: Composition/Information on Ingredients

Name	Product Identifier	Percent By Weight (%)	Impurities
Carbon	(CAS No.) 7440-44-0	100	None

Section 4: First-Aid Measures

4.1 Description of first aid measures

Inhalation First Aid	Remove person to fresh air. If not breathing, administer CPR or artificial respiration. Seek immediate medical attention.
Skin Contact First Aid	If skin reddening or irritation develops, seek medical attention.
Eye Contact First Aid	Immediately flush eyes with plenty of water for at least 15 minutes. If irritation persists seek medical attention.
Ingestion First Aid	If the material is swallowed, rinse mouth thoroughly. DO NOT induce vomiting unless directed to do so by medical personnel. Seek medical attention if large amounts are ingested.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause respiratory irritation.

Symptoms/injuries after skin contact : Causes skin irritation.

Symptoms/injuries after eye contact : Causes eye irritation.

Symptoms/injuries after ingestion : May be harmful if swallowed.

4.3 Indication of any immediate medical attention and special treatment needed

No additional information available

Section 5: Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

5.2 Special hazards arising from the substance or mixture

Fire hazard : None known.

Explosion hazard : None known.

5.3 Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear (chemical protective clothing and breathing apparatus).

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

General measures : Avoid contact with the skin and the eyes.
For non-emergency personnel : No additional information available
For emergency responders : No additional information available

6.2 Environmental precautions

None.

6.3 Methods and material for containment and cleaning up

For containment : If possible, stop flow of product.
Methods for cleaning up : Shovel or sweep up and put in a closed container for disposal.

6.4 Reference to other sections

No additional information available

Section 7: Handling and Storage

7.1 Precautions for safe handling

Avoid generation of dust.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions : Protect containers from physical damage. Keep container tightly closed and store in dry, cool, well-ventilated area. Protect material from contaminated water and gases.

7.3 Specific end use(s)

No additional information available

Section 8: Exposure Controls/Personal Protection

8.1 Control parameters

No additional information available

8.2 Exposure controls/Person Protection

Appropriate engineering controls : Local exhaust and general ventilation must be adequate to meet exposure standards.
Hand protection : Use impervious gloves to minimize skin contact.
Eye protection : Safety glasses.
Skin and body protection : Wear suitable working clothes.
Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state : Solid
Appearance : Granules
Color : Black
Odor : No data available
Odor threshold : No data available
pH : No data available
Relative evaporation rate (butylacetate=1) : No data available
Melting point : No data available
Freezing point : No data available
Boiling point : No data available
Flash point : No data available
Self ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available
Relative density : 29-31 lb/ft³
Solubility : No data available
Log Pow : No data available
Log Kow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : No data available

Section 10: Stability and Reactivity

10.1 Reactivity

Contact with strong oxidizers such as ozone, liquid oxygen, chlorine, etc. may result in fire.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

None.

10.4 Conditions to avoid

None.

10.5 Incompatible materials

Strong oxidizers such as ozone, liquid oxygen, chlorine, etc.

10.6 Hazardous decomposition products

Carbon monoxide may be generated in the event of fire.

Section 11: Toxicological Information

11.1 Information on toxicological effects

Acute toxicity : Not classified

Carbon (CAS No. 7440-44-0)

LD50 Oral Rat	> 1000 mg/kg
---------------	--------------

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Section 12: Ecological Information

12.1 Toxicity

No additional information available

12.2 Persistence and degradability

No additional information available

12.3 Bioaccumulative potential

No additional information available

12.4 Mobility in soil

No additional information available

12.5 Other adverse effects

No additional information available

Section 13: Disposal Considerations

13.1 Waste treatment methods

Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14: Transport Information

In accordance with DOT / ADR / RID / ADNR / IMDG / ICAO / IATA

14.1 UN number

Not applicable

14.2 UN proper shipping name

Not applicable

Section 15: Regulatory Information

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

15.1 US Federal regulations

OSHA: This product is not known to be hazardous by OSHA Highly Hazardous Process Safety Standard, 29 CFR 1910.119.

CERCLA/SARA Hazardous Substances: Not applicable.

15.2 US State regulations

Review specific state regulations.

Section 16: Other Information

Full text of H-phrases:

Eye Irrit. 2B	Serious eye damage/eye irritation Category 2B
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H335	May cause respiratory irritation

NFPA health hazard : 1 Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard : 0 Materials that will not burn

NFPA reactivity : 0 Normally stable, even under fire exposure conditions, and are not reactive with water

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Appendix D: Job Hazard Analysis

SECTION 1: JOB/TASK/PROCESS (Document General Information Below)

SCOPE OF WORK: WWT system Media and filter changeout.			DURATION OF PROJECT/TASK: TBD
JOB HAZARD ANALYSIS LED BY (Print Name): Steve Cozak	TITLE: Field Service Project Manager	ORIGINAL ANALYSIS DATE: 11/29/22	REVISION DATE: 03/18/24
JOB HAZARD ANALYSIS REVIEWED BY (Print Name):: Greg Bird, CSP	TITLE: Sr. Health and Safety Manager	APPROVED BY: G. Bird	TITLE: Sr. H&S Mgr.

SECTION 2: Chemical/Physical/ Biological Hazards (Describe Job Hazard Agents Identified)

Chemical Agents (HAZCOM/ WHMIS MSDS Review)	Physical Agents	Biological Agents
Landfill Leachate, VOCs (trace), Hydrogen Peroxide, Talon(non-Cl Brake cleaner), Defoaming agent.	Slip, Trips, Falls, Pinch Points, Noise, Pressurized systems.	Heat Stress, Cold Stress

SECTION 3: PPE HAZARD ASSESSMENT SUMMARY

Head	<input checked="" type="checkbox"/> Hard Hat <input type="checkbox"/> Side Impact Hard Hat <input type="checkbox"/> DOT Approved Helmet <input type="checkbox"/> Lock-On-Life Support Helmet <input type="checkbox"/> Other: _____
Eyes/Face/Neck	<input checked="" type="checkbox"/> Safety Glasses with Side Shields <input checked="" type="checkbox"/> Goggles – Chemical <input type="checkbox"/> Goggles – Dust <input checked="" type="checkbox"/> Face Shield <input type="checkbox"/> Welding Helmet <input type="checkbox"/> Balaclava (F.R.) <input type="checkbox"/> Other: _____
Respiratory	<input type="checkbox"/> Dust Mask <input type="checkbox"/> Half Face Respirator/Cartridge Type: _____ <input type="checkbox"/> Full Face AP Respirator/Cartridge Type: <input type="checkbox"/> PAPR/ Cartridge Type: _____ <input checked="" type="checkbox"/> SABA <input type="checkbox"/> SCBA <input type="checkbox"/> Lock-On-Life Support Helmet <input type="checkbox"/> Other: _____
Ears/Hearing	<input checked="" type="checkbox"/> Ear Plug <input type="checkbox"/> Ear Muff <input type="checkbox"/> Double (Combination Ear Plugs & Ear Muffs) <input type="checkbox"/> Other: _____
Hands/Arms	<input type="checkbox"/> Cotton Gloves <input checked="" type="checkbox"/> Leather Gloves <input type="checkbox"/> Puncture/Cut Resistant <input checked="" type="checkbox"/> PVA <input checked="" type="checkbox"/> Nitrile Liner <input type="checkbox"/> Anti-vibration <input type="checkbox"/> Impact Protection <input type="checkbox"/> Thermal <input type="checkbox"/> Sleeves <input type="checkbox"/> Wristlets/Type: _____ <input type="checkbox"/> Other: _____
Body	<input type="checkbox"/> Fire Retardant Coveralls/Uniform <input type="checkbox"/> Chemical Protective Clothing/Type: _____ <input type="checkbox"/> Tyvek/Type: <input type="checkbox"/> Apron <input type="checkbox"/> Sleeves <input type="checkbox"/> Life Jacket/Vest <input checked="" type="checkbox"/> High Visibility Vest/Shirt <input type="checkbox"/> Heat Reflective Suit <input type="checkbox"/> Foul Weather Gear <input type="checkbox"/> Cool Vest <input type="checkbox"/> Kevlar Cut Resistant Suits <input type="checkbox"/> Other: _____
Feet	<input checked="" type="checkbox"/> Safety Boots – Leather or Rubber <input type="checkbox"/> Metatarsals (Feet & Shin) <input type="checkbox"/> Ice Cleats (Slip-Overs) <input type="checkbox"/> Booties/ Type: _____ <input type="checkbox"/> Other: _____
Covid-19	<input checked="" type="checkbox"/> Cloth Face covering within 6ft of others <input checked="" type="checkbox"/> Refer to CHES Pandemic Management Plan

SECTION 4: HAZARD ANALYSIS PROCESS (Document Hazard Analysis and Controls Based on each Job Step/ Task Sequence)

Sequence Of Job Steps/Tasks (Number)	Hazards/Potential Hazards & Effects (What could go wrong?)	Recommended Hazard Control Or Safe Job Procedures (How can harm be prevented?)	Required PPE (List PPE required for each Job Step)
1. Set-up of Hurricane (Vacuum Truck), Roll-Off Container and Containments	<ul style="list-style-type: none"> a) Truck placement b) Slips, trips, falls c) Back strain/injuries 	<ul style="list-style-type: none"> a) Inspect the staging area and make sure everything is level and secured. Utilize a spotter to guide into the area. inspect area overhead before moving vehicle b) Tour and inspect work area to find slip trip fall hazards. Remove, protect, or mark all slip trip fall hazards. Create safe pedestrian pathways. c) Use proper lifting techniques. Utilize proper body positioning knees bent, back straight and shoulders square. Utilize mechanical means, forklifts, to move equipment. DO not lift anything over 50 pounds without assistance. 	<p>Level-D Hard Hat Safety Glasses Steel toe boots Leather Gloves with nitrile liners Safety Vest Hearing protection as needed</p>
2. Removal of Spent Media	<ul style="list-style-type: none"> a) Slips, trips, and falls b) Back strain/injuries c) Utilize Vacuum hopper unit d) Utilize forklift or other mechanical means to move drums/equipment 	<ul style="list-style-type: none"> a) Tour and inspect work area to find slip trip fall hazards. Remove, protect, or mark all slip trip fall hazards. Create safe pedestrian pathways. b) Use proper lifting techniques. Utilize proper body positioning knees bent, back straight and shoulders square. Utilize mechanical means, forklifts, to move equipment. DO not lift anything over 50 pounds without assistance. c) Discharge vapors downwind away from personnel. d) Only authorized personnel will be allowed to operate Forklift/mechanical equipment. Use seat belt at all times. Do not lift loads in uneven ground/surfaces. BE aware of your surroundings 	<p>Level-D Hard Hat Safety Glasses Steel toe boots Leather Gloves with nitrile liners Safety Vest Hearing protection as needed</p>

<p>3. Moving and loading the hurricane/hopper and dumping media into a roll-off for disposal</p>	<p>a) Slips, trips, and falls</p> <p>b) Struck by equipment</p> <p>c) Back strain/injuries</p> <p>d) Pinch Points</p>	<p>a) Tour and inspect work area to find slip trip fall hazards. Remove, protect, or mark all slip trip fall hazards. Create safe pedestrian pathways.</p> <p>b) Stay clear of equipment during load out. Never approach equipment unless the operator is aware of your approach. Do not get under suspended loads.</p> <p>c) Use proper lifting techniques. Utilize proper body positioning knees bent, back straight and shoulders square. Utilize mechanical means, forklifts, to move equipment. DO not lift anything over 50 pounds without assistance.</p> <p>d) Always be aware of your surroundings and where you are placing your hands and fingers. Never place your hands in areas you cannot see.</p>	<p>Level D: Hard Hat Steel toe boots Safety Glasses PVA Gloves Nitrile Inner gloves Safety Vest Hearing protection, as needed</p>
<p>4. Reload Vessel with new media</p>	<p>a) Slips, Trips, and Falls</p> <p>b) Working from a ladder</p> <p>c) Back strain/injuries</p> <p>d) Hand Lacerations</p> <p>e) Pinch Points</p>	<p>a) Tour and inspect work area to find slip trip fall hazards. Remove, protect, or mark all slip trip fall hazards. Create safe pedestrian pathways.</p> <p>b) Set ladder base on a stable flat surface. Always keep three points in contact while on the ladder. Tie ladder with rope to the dome on top of the vessel. Do not allow your belt buckle to go beyond the ladder</p> <p>c) Use proper lifting techniques. Utilize proper body positioning knees bent, back straight and shoulders square. Utilize mechanical means, forklifts, to move equipment. DO not lift anything over 50 pounds without assistance.</p> <p>d) Use only scissors or shears to cut with. Open blade cutters, including safety cutters are not permitted.</p> <p>e) Always be aware of your surroundings and where you are placing your hands and fingers. Never place your hands in areas you cannot see.</p>	<p>Level D: Hard Hat Steel toe boots Safety Glasses PVA Gloves Nitrile Inner gloves Safety Vest Hearing protection, as needed</p>

<p>5. Filter Change-out: - Pressurize filter housing to purge water; - Open lid and replace bags</p>	<p>a) Sudden Release of Pressure when opening the filter unit.</p> <p>b) Skin contact with impacted water.</p> <p>c) Strains/sprains when lifting lids, filters and other object.</p> <p>d) Strains when tightening/loosening vessel access bolts.</p>	<p>a) Perform the LOTO/Shut-down procedure attached to this JHA to assure all energy has been eliminated.</p> <p>When pressurizing the filter vessel:</p> <ul style="list-style-type: none"> - Use pressure regulator on compressor. - Set max pressure to 20psi. - After pressurizing, release pressure from lid bleed valve before attempting to loosen lid bolts. - Once pressure gage reads ZERO (0), unbolt vessel lid in the following manner: <p>Note: There are 24 lid bolts. Loosen/Tighten the bolts in an opposing manner such as in step 1 below.</p> <p>1- Loosen anchor bolts symmetrically in the following order: but keep snug until all have been initially loosened.</p> <div> <p>The diagram shows a circle representing the lid with eight anchor bolts numbered 1 through 8. The bolts are arranged in two columns of four. The left column bolts are numbered 8 (top), 4 (middle), 6 (bottom), and 2 (bottom-most). The right column bolts are numbered 5 (top), 3 (middle), 7 (bottom), and 2 (bottom-most). Note that the number 2 is shared at the bottom-most position.</p> </div> <p>2- After initial loosening, free all anchors in the same order. 3- Once filter bags have been replaced, check gasket and close lid. 4- Secure and tighten all anchor bolts in the same order as above.</p> <p>b) Assure all lines are drained before opening. Wear liquid goggles, face shield or FF Respirator for splash protection. Wear impervious gloves listed in section 3 of this JHA.</p> <p>c) Lift lid using screw jack. Utilize proper body positioning knees bent, back straight and shoulders square. Utilize mechanical means, forklifts, to move equipment. DO not lift anything over 50 pounds without assistance.</p> <p>d) Use the correct tool that is large enough for leverage or use air impact wrench. Inspect tool before use. Never use a “cheater bar” on a wrench.</p>	<p>Level D: Hard Hat Steel toe boots Safety Glasses PVA Gloves Nitrile Inner gloves Safety Vest Hearing protection, as needed</p>
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SECTION 5: Atmospheric Monitoring Required: Yes No

[For assistance determining exposure action levels please refer to Clean Harbors' Respiratory Protection Standard - Appendix 9]

List Substance(s) or Material(s) of Concern Below:	Monitoring Instrument	Substance / Material Exposure Action Levels			
		Level A	Level B	Level C	Level D

Air Monitoring is not planned for this task.

SECTION 6: Training (Document the required Job Task Training)

See Section 4.0 of HASP

SECTION 7: Emergency Procedures (Document the Emergency Response Procedures – i.e. First Aid, Emergency Call #'s, etc.)

See Appendix B of the HASP

SECTION 8: Decontamination Procedures (Document the Decontamination Procedures –i.e. People and Equipment)

Hazmat decontamination is not anticipated. System components will be flushed prior to demobilization.

SECTION 9: Additional Job Specific Considerations: Yes No

SECTION 10: Job Hazard Analysis Verification (Crew Supervisor Review and Sign Off)

The Job Hazard Analysis Team has assessed the worksite conditions and confirms:

- The JHA addresses the significant Task Steps and applicable hazards and necessary controls.
- The Team has the appropriate resources (people and equipment) to do the job safely.
- Others that could be affected by the work have been informed.
- Energy isolation (if applicable) has been VERIFIED AND DEMONSTRATED.
- This document facilitates compliance of the PPE assessment and hazard analysis pursuant to company, legislative and client requirements.

CREW SUPERVISOR (Please Print):	POSITION:	SIGNATURE:	DATE:

SECTION 11: CREW REVIEW AND SIGN-OFF

NAME (Print)	Signature	NAME (Print)	Signature	NAME (Print)	Signature



JOB HAZARD ANALYSIS

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Owner:
Health & Safety

SECTION 1: JOB/TASK/PROCESS (Document General Information Below)

SCOPE OF WORK			DURATION OF PROJECT/TASK:
Set-Up and Operation of Temporary Water Treatment System			
Original JOB HAZARD ANALYSIS LED BY (Print Name): Steve Cozak	TITLE: Project Manager	ORIGINAL ANALYSIS DATE: 02/24/22	REVISION DATE: 03/18/24
JOB HAZARD ANALYSIS REVIEWED BY (Print Name):: Greg Bird	TITLE: Sr. H&S Manager	APPROVED BY: Greg Bird	TITLE: Sr. H&S Manager

SECTION 2: Chemical/Physical/ Biological Hazards (Describe Job Hazard Agents Identified)

Chemical Agents (HAZCOM/ WHMIS MSDS Review)	Physical Agents	Biological Agents
Landfill Leachate, VOCs (trace), Hydrogen Peroxide, Talon(non-Cl Brake cleaner), Defoaming agent.	Slip, Trips, Falls, Pinch Points, Noise, Pressurized systems.	Heat Stress, Cold Stress

SECTION 3: PPE HAZARD ASSESSMENT SUMMARY

Head	<input checked="" type="checkbox"/> Hard Hat <input type="checkbox"/> Side Impact Hard Hat <input type="checkbox"/> DOT Approved Helmet <input type="checkbox"/> Lock-On-Life Support Helmet <input type="checkbox"/> Other: _____
Eyes/Face/Neck	<input checked="" type="checkbox"/> Safety Glasses with Side Shields <input checked="" type="checkbox"/> Goggles – Chemical <input type="checkbox"/> Goggles – Dust <input checked="" type="checkbox"/> Face Shield <input type="checkbox"/> Welding Helmet <input type="checkbox"/> Balaclava (F.R.) <input type="checkbox"/> Other: _____
Respiratory	<input type="checkbox"/> Dust Mask <input type="checkbox"/> Half Face Respirator/Cartridge Type: _____ <input type="checkbox"/> Full Face AP Respirator/Cartridge Type: _____ <input type="checkbox"/> PAPR/ Cartridge Type: _____ <input type="checkbox"/> SABA <input type="checkbox"/> SCBA <input type="checkbox"/> Lock-On-Life Support Helmet <input type="checkbox"/> Other: _____
Ears/Hearing	<input checked="" type="checkbox"/> Ear Plug <input type="checkbox"/> Ear Muff <input type="checkbox"/> Double (Combination Ear Plugs & Ear Muffs) <input type="checkbox"/> Other: _____
Hands/Arms	<input type="checkbox"/> Cotton Gloves <input checked="" type="checkbox"/> Leather Gloves <input type="checkbox"/> Puncture/Cut Resistant <input type="checkbox"/> PVC <input checked="" type="checkbox"/> Nitrile <input type="checkbox"/> Anti-vibration <input type="checkbox"/> Impact Protection <input type="checkbox"/> Thermal <input type="checkbox"/> Sleeves <input type="checkbox"/> Wristlets/Type: _____ <input type="checkbox"/> Other: _____
Body	<input type="checkbox"/> Fire Retardant Coveralls/Uniform <input type="checkbox"/> Chemical Protective Clothing/Type: _____ <input type="checkbox"/> Tyvek/Type: _____ <input type="checkbox"/> Apron <input checked="" type="checkbox"/> Sleeves <input type="checkbox"/> Life Jacket/Vest <input checked="" type="checkbox"/> High Visibility Vest/Shirt <input type="checkbox"/> Heat Reflective Suit <input type="checkbox"/> Foul Weather Gear <input type="checkbox"/> Cool Vest <input type="checkbox"/> Kevlar Cut Resistant Suits <input type="checkbox"/> Other: _____
Feet	<input type="checkbox"/> Safety Boots – Leather or Rubber <input type="checkbox"/> Metatarsals (Feet & Shin) <input type="checkbox"/> Ice Cleats (Slip-Overs) <input type="checkbox"/> Booties/ Type: _____ <input checked="" type="checkbox"/> Other: leather Safety Shoes w/safety toe
Covid-19	<input checked="" type="checkbox"/> Cloth Face covering within 6ft of others <input checked="" type="checkbox"/> Refer to CHES Pandemic Management Plan



JOB HAZARD ANALYSIS

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SECTION 4: HAZARD ANALYSIS PROCESS (Document Hazard Analysis and Controls Based on each Job Step/ Task Sequence)

Sequence Of Job Steps and Tasks	Hazards/Potential Hazards & Effects (What could go wrong?)	Recommended Hazard Control Or Safe Job Procedures (How can harm be prevented?)	Required PPE (List PPE required for each Job Step)
For all tasks	<ul style="list-style-type: none"> a. Slip, Trip, Fall hazards b. Lifting, strains, 	<ul style="list-style-type: none"> a. Tour and inspect work area to find all STF hazards; remove, protect, or mark all STF hazards; Create safe pedestrian paths; locate hoses, materials, equipment in vehicles away from pedestrian pathways. b. Use available mechanical equipment with appropriate attachments; use safe lifting techniques, such as keeping lower back straight, lifting with leg muscles, "build-a-bridge" by placing one hand on a stable object; get help with anything that weighs more than 50 pounds. 	Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection
Set up of Equipment	<ul style="list-style-type: none"> a. Crushed by/Struck by equipment during movement. b. Pinch points, c. Working from height d. Cuts, bruises, broken bones when un-coiling hoses e. Struck by compressor or generator. 	<ul style="list-style-type: none"> a. Ensure spotter is used when backing equipment in place. Personnel to keep clear a minimum of 5ft from equipment/vehicles during positioning b. Review and locate equipment labels for any pinch point warnings. Check for other pinch points such as camlock connectors. Keep hands and feet clear of heavy items being placed c. System trailers are less than 4ft high. However, inspect and set up railing systems on portable storage units. Use small work platforms to access equipment, avoid step stools and ladders if possible. d. Never release a coiled hose without assistance. Never uncoil a hose vertically, always set hose horizontally on the ground when releasing tie straps. e. Assure compressors or Generator wheels are chocked. Un-hitch trailer from tow vehicle in case of emergency evacuation from the area 	Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection



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<p>Start System Pumps</p>	<ul style="list-style-type: none"> a. Pressure hazards b. Skin contact with impacted water from leaks in the system. c. Struck by system components if not secured. Hoses can jump suddenly and cause direct injury or injury from a fall, especially on corners and bends. d. Exposure to substances of concern. e. High noise levels from generator or compressor engines f. Electric shock from Generators 	<ul style="list-style-type: none"> a. Release all stored pressure before working with hoses. Secure camlock fittings on hoses with camlock clamps or heavy-duty wire ties. Ensure that any chemical injection lines are secure. b. Before starting the system, perform system leak checks as required in the WWTS SOP. c. Secure all hoses using ratchet straps or some other robust method. Do not secure with ropes. When laying hose, minimize curves and corners. d. Wear PPE prescribed in Section 3. e. Wear hearing protection prescribed in Section 3. f. Inspect wiring for excess wear or damage. Ensure the GFCI is operational or use an in-line GFCI. 	<p style="text-align: center;">Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection</p>
<p>Monitor system:</p> <ul style="list-style-type: none"> - Flow meter readings - Process sampling 	<ul style="list-style-type: none"> a. Water pressure b. Splashes and skin contact with impacted water 	<ul style="list-style-type: none"> a. Ensure all pumping lines are connected and secured. Secure camlock fittings on hoses. Ensure that injection lines are secure. b. Wear PPE prescribed in Section 3, including face shield or goggles. 	<p style="text-align: center;">Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection</p>
<p>Water Storage:</p> <ul style="list-style-type: none"> -Frac Tanks -Weir tanks -Water Separators 	<ul style="list-style-type: none"> a. Falls from height. b. Skin contact with impacted water c. Leaks and spills from vessels, hoses, connections. 	<ul style="list-style-type: none"> a. Ensure vessel have railings. If no railings, Contact H&S for a personal fall protection plan b. Wear PPE as described in Section 3. Close files and bleed hoses into secondary containment before disconnecting lines. c. Perform periodic checks on system for leaks. Ensure frank tanks, weir tanks, separators R set within the secondary containment. Ensure basic spill response equipment is available. 	



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Decon and clean up materials.	a. Exposure b. Strains	a. Use PPE when wiping down equipment, b. Use Safe lifting techniques such as: <ul style="list-style-type: none">- Keeping back straight- Lift with legs, not the back- Get assistance from others- Use available mechanical assist	Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection
Pump operation	a. Fire and spills during refueling. b. Pressure and Splash exposure to contaminants of concern.	a. Assure fuel container and pump fuel tank static has been dissipated by touching the pump, then the fuel container with bare hands. Assure a 20lb fire Extinguisher is in the immediate vicinity. Never lock and/or leave the fill spigot unattended. Remove locking pin from dispenser. Place secondary containment at the fueling station to capture incidental spills. Check fuel tank caps to assure they are tight. b. Shut down pump and bleed effluent line before disconnecting hose, troubleshooting or any other maintenance task	Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection
Operation of Treated Water Injection pump	a. Uncontrolled release of pressure. b. High Noise	a. Assure the injection hydrant valve is open before starting pump. During recirculation, monitor pressure gage for max pressure not to exceed 150psi. When shutting down, shut down pump first, then close injection hydrant valve. Drain/Bleed lines before disconnecting hoses. b. Wear prescribed hearing protection.	Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection
Waste Characterization and Handling	a. Skin exposure from samples and sample preservatives.	a. Wear prescribed PPE in Section 3 when handling samples and preservatives.	Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection



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Add other identified site hazards here

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SECTION 5: Atmospheric Monitoring Required: Yes No

[For assistance determining exposure action levels please refer to Clean Harbors' Respiratory Protection Standard - Appendix 9]

List Substance(s) or Material(s) of Concern Below:	Monitoring Instrument	Substance / Material Exposure Action Levels			
		Level A	Level B	Level C	Level D

SECTION 6: Training (Document the required Job Task Training)



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- Site orientation

SECTION 7: Emergency Procedures (*Document the Emergency Response Procedures - i.e. First Aid, Emergency Call #'s, etc.*)

- Refer to site/facility emergency procedures

SECTION 8: Decontamination Procedures (*Document the Decontamination Procedures -i.e. People and Equipment*)

N/A

SECTION 9: Additional Job Specific Considerations: Yes No

SECTION 10: Job Hazard Analysis Verification (Crew Supervisor Review and Sign Off)

The Job Hazard Analysis Team has assessed the worksite conditions and confirms:


- The job and site specific conditions have been reviewed to ensure additional hazards have been addressed as warranted.
- The JHA addresses the significant Task Steps and applicable hazards and necessary controls.
- The Team has the appropriate resources (people and equipment) to do the job safely.
- Others that could be affected by the work have been informed.
- Energy isolation (if applicable) has been VERIFIED AND DEMONSTRATED.
- This document facilitates compliance of the PPE assessment and hazard analysis pursuant to company, legislative and client requirements.

SUPERVISOR / PM/ GM (Please Print):	POSITION:	SIGNATURE:	DATE:
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SECTION 11: Job Hazard Analysis Review (Work Team Reviews and Sign-Off)

NAME (Print)	Signature	NAME (Print)	Signature	NAME (Print)	Signature

JOB HAZARD ANALYSIS

Project Name:	Waste Connections – VOC&SVOC Treatment Rapid Response	
Location:	Chiquita Canyon Landfill	
Date Prepared:	03/08/2024 (updated 4/4/24)	
Activity/Work Task:	Site Operations	
Prepared By:	TJS	Signature:
Reviewed By:	Ricardo Vera	Signature: 

Calculate Risk Assessment Score (RA)						
Extreme	Consequences					
	High	Significant	Low	Minor	Minor	
	Neg (1)	Min (2)	Ser(3)	Maj(4)	Cat(5)	
Likelihood	Rare (1)	1 (M)	2 (M)	3 (M)	4 (L)	5 (L)
	Unlikely (2)	2 (M)	4 (L)	6 (L)	8 (S)	10 (S)
	Possible (3)	3 (M)	6 (L)	9 (S)	12 (S)	15 (H)
	Likely (4)	4 (L)	8 (S)	12 (S)	16 (H)	20 (E)
	Almost Certain (5)	5 (L)	10 (S)	15 (H)	20 (E)	25 (E)

Task/Step	Potential Hazards	Impact	Recommended Safe Job Procedures/Controls	Risk Outcome
General – Site Requirements	SIMOPS – Active Landfill, H2S Gas, VOC's, Hot Liquids	Fire/ Explosion	<ul style="list-style-type: none"> Staff working onsite are required to don – Hard Hat, Safety, Glasses, and Safety Boots Require – gloves are task dependent – See HASP Emergency Response Staff are required to use 5 gas meters when working in areas where VOC's are present (example: frac tank area, landfill, etc.,) 	
Unloading Equipment/Set-up	Lull Operation	Pinch/Crush/Equipment Damage	<ul style="list-style-type: none"> Client will provide a lull and qualified operator to move equipment and assist with medial loading. Lull - properly rated, inspected and in good working order ECT2 personnel to stay out of the work zone – do not approach the lull during operation unless acknowledged by the operator and the forks have been placed on the ground If ECT2 personnel are to play a role in the equipment placement, high vis clothing or vest shall be worn. <ul style="list-style-type: none"> Establish communication protocol with operator Avoid line of fire and operator blind spots <p>Verify equipment was inspected prior to use and operator is qualified to operate the equipment.</p>	8S
	Hand and Power Tools	Cuts/Scrapes	<ul style="list-style-type: none"> Keep all tools in good condition with regular maintenance. Use the right tool for the job. Do not use a tool for which it was not designed. Examine each tool for damage before use and do not use damaged tools. 	6L

Task/Step	Potential Hazards	Impact	Recommended Safe Job Procedures/Controls	Risk Outcome
			<ul style="list-style-type: none"> Operate tools according to the manufacturers' instructions. Use the appropriate personal protective equipment. All electrically powered hand tools will be connected through a ground fault circuit interrupter (GFCI). For those tool(s) that are damaged or otherwise defective, the tool will be red-tagged and taken out of service. 	
	Manual Lifting	Sprain/Strain	<ul style="list-style-type: none"> Use mechanical means as first option when available. Under no circumstances should any one person lift more than 49 pounds unassisted. Whenever possible use at least two people to lift the item. Bend the knees; it is the single most important aspect of lifting. Always push, not pull, the object when possible. Size up the load before you lift. Test by lifting one of the corners or pushing. If it's heavy or feels clumsy, get mechanical aid or help from another worker. When in doubt, do not lift alone! Bend the knees; it is the single most important aspect of lifting and limit and twisting of the back. 	6L
Media Loading	Suspended Load (media super sacks)	Crushed By	<p>Inspect the super sack straps are not damaged. Ensure proper position on forks – test lift the super sack to verify proper strap position. Do not stand under or near the suspended load Designated spotter while sack is positioned above the vessel</p> <ul style="list-style-type: none"> High Visibility Vest Use tools provided to open supersack over the Jacky bin. <p>Only qualified / certified operator to operate equipment for rigging</p>	6L
	Suspended load (jacky bin over vessel)	Crushed By	<ul style="list-style-type: none"> Good comms between lull operator and staff member operating jack bin gate. Maintain line of sight. Use 3rd man as spotter 	6L
	Manlift to open manhole for media loading, inhalation of	Unconsciousness, death, splash from impacted material	<ul style="list-style-type: none"> Utilize 5 gas monitor prior to opening & during any work near manway. Equipment requiring maintenance that may expose a worker to hazardous energy or exposure 	6L

Task/Step	Potential Hazards	Impact	Recommended Safe Job Procedures/Controls	Risk Outcome
	gases, fire/explosion, stored energy		<p>to impacted water/leachate requires proper isolation</p> <ul style="list-style-type: none"> - If more than one hazardous energy source requires isolation execute an Energy Isolation Procedure – test for dead prior to executing work - Utilize locks/tags as required - Coordinate work first with Project Manager - PPE: face shield, gauntlet gloves - Wash facilities in the event of contact with skin – use Eyewash unit with wand - When unbolting manway, do NOT remove bolts until manlift has been tested verified for zero pressure. This is performed by lifting manway up utilizing 2 x 4 board or equivalent to ensure stored energy is not in the system. 	
	Manlift to guide Media loading	Falls, crushed, fatality	<ul style="list-style-type: none"> - Always use proper fall prevention while operating or inside of manlift. - Do not stand or use rails as steps - Stay out of line of fire when media super sacks are being guided to vessel - Utilize 5 gas meter to while opening and when performing work near the vessels - Utilize proper PPE when opening supersacks, and never place your body in the line of fire when opening sack underneath manway. - Only qualified MEWP operator to operate manlift - When introducing water into vessels for breaking of media or to put water in system for offgasing. Keep body out of line of fire so that you don't get backsplash. Wear a faceshield and protective clothing when appropriate. 	6L
Operations	Ladder Use	Fall/Injury	<ul style="list-style-type: none"> ● Ladders shall be maintained in good condition at all times. ● Secure ladder when in use by tying off or having a second person provide support. ● Safety feet and other auxiliary equipment shall be kept in good condition to ensure proper performance. ● Ladders shall be inspected prior to use, and those which have developed defects shall be withdrawn from service for repair or destruction and tagged or marked as "Dangerous, Do Not Use." ● Rungs should be kept free of grease and oil. ● If a ladder is involved in any of the following, immediate inspection is necessary: <ul style="list-style-type: none"> ○ If ladders tip over, inspect the ladder for side rails dents or bends or excessively dented rungs. Check all rung-to-side-rail connections; check hardware connections and rivets for shear. 	6L

Task/Step	Potential Hazards	Impact	Recommended Safe Job Procedures/Controls	Risk Outcome
			<ul style="list-style-type: none"> ○ If ladders are exposed to oil and grease, equipment should be cleaned of oil, grease or slippery materials. This can easily be done with a solvent or steam cleaning. <p>Ladders having defects are to be marked (as indicated above) and taken out of service until repaired by an authorized party.</p>	
	Slips/Trip – area is muddy (wet soil), also working in area with hoses and parts running throughout site	Injury	<ul style="list-style-type: none"> ● Keep work areas clean and free of clutter. ● Communicate hazards to on-site personnel – remove hazards as appropriate. ● Take your time and pay attention to where you are going ● Adjust your stride to a pace that is suitable for the walking surface and the tasks you are doing. NO RUNNING. ● Check the work area to identify hazards - beware of trip hazards such as uneven surfaces or terrain. ● Establish and utilize a pathway free of slip and trip hazards. ● Choose a safer and dry walking route. Carry loads you can see over. 	6L
	VOCs	Inhalation	<ul style="list-style-type: none"> ● VOC emissions are anticipated to be minimal for ECT2 tasks. ● PID – (5 gas)to monitor general work area and frac tank head space, work zone. See HASP Environmental Monitoring. 	4L
	Sampling	Exposure VOC/SVOC impacted water	<ul style="list-style-type: none"> ● Proper sampling technique to minimize splashing ● PPE – nitrile gloves, face shield or goggles ● Accessible handwashing station – wash hands before eating and prior to leaving the site. 	3M
Maintenance	Hazardous Energy	Shock/water under pressure	<ul style="list-style-type: none"> ● Equipment requiring maintenance that may expose a worker to hazardous energy requires proper isolation ● If more than one hazardous energy source requires isolation execute an Energy Isolation Procedure – test for dead prior to executing work ● Utilize locks/tags as required ● Coordinate work first with Project Manager ● Only QEW to isolate power/electricity if electrical isolation is required. 	6L
Line Breaking	Hazardous Energy	Shock/water under pressure/splash	<ul style="list-style-type: none"> ● Only QEW to isolate power/electricity if electrical isolation is required. ● Equipment requiring maintenance that may expose a worker to hazardous energy or exposure to impacted water/leachate requires proper isolation 	6L

Task/Step	Potential Hazards	Impact	Recommended Safe Job Procedures/Controls	Risk Outcome
			<ul style="list-style-type: none"> • If more than one hazardous energy source requires isolation execute an Energy Isolation Procedure – test for dead prior to executing work • Utilize locks/tags as required • Coordinate work first with Project Manager • PPE: face shield, gauntlet gloves • Wash facilities in the event of contact with skin – use Eyewash unit with wand 	
	Hazardous Gases	Losing consciousness, death, serious injury	<ul style="list-style-type: none"> • Utilize 5 gas monitor at source before, during and after to ensure no gases are present. • Keep body and face away from area being opened • Utilize proper tools • Utilize proper PPE depending on contaminants and work being performed. 	
Media Removal/ Vac Truck	High Noise	Hearing Damage	<ul style="list-style-type: none"> • Vac truck operation produces high noise levels above 85 dBA. • Use hearing protection when in the vicinity of the vac truck. • Limit activity to staff only involved in media removal • Utilize exclusion zone to keep personnel out of work zones 	6L
	Impacted Media/ waste	Improper Disposal	<ul style="list-style-type: none"> • The client is responsible for disposal of spent media. 	6L

