South Coast
Air Quality Management District
South Coast AQMD
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 · www.aqmd.gov

SOURCE TEST REPORT

17-336

CONDUCTED AT

Mattco Forge
16443 Minnesota Avenue
Paramount, CA 90723

# HEXAVALENT CHROMIUM EMISSIONS FROM FURNACE #17 & GRINDING AREA

TESTED: March 29, 2017

ISSUED: June 2, 2017

REPORTED BY: P. Eric Padilla
Air Quality Engineer II

REVIEWED BY:

Michael Garibay
Supervising Air Quality Engineer

SOURCE TEST ENGINEERING BRANCH

MONITORING & ANALYSIS DIVISION

*Cleaning the air that we breathe...*

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SUMMARY

| | |
|---|---|
| a. Firm | Mattco Forge |
| b. Test Location | 16443 Minnesota Avenue, Paramount, CA 90723 |
| c. Unit Tested | Furnace #17 & Grinding Area |
| d. Test Requested by | Matt Miyasato (DEO), (909) 396-3249, SCAQMD |
| e. Reason for Test Request | High ambient air monitor readings of Cr (VI) |
| f. Date of Test | March 29, 2017 |
| g. Source Test Performed by | Mike Garibay, Wayne Stredwick Bill Welch, Eric Padilla |
| h. Test Arrangements Made Through | Jon Lindbeck (President/General Manager, Mattco Forge) (562) 634-8635 |
| g. Source Test Observed by | Jon Lindbeck, Rob Lewis (Vice President, Mattco Forge),Tony Garcia (Advanced Environmental Compliance) |
| j. Company I.D. No. | 181199 |
| k. Permit No. | N/A |

RESULTS

**Summary of Test Conditions:**

During the source test, Furnace #17 was operating at 2050° F. The composition of the nine parts inside the furnace contained 15.53% chromium. In the grinding area, all three grinding stations were being used to process stainless steel parts. The stainless steel being ground contained 17.69% chromium. Due to the nature and configuration of the process, testing was performed as a screening test, non-isokinetically, lacking sampling ports to determine exhaust rate.

Two ambient monitors are located in close proximity to the facility, Monitor 21 and Monitor 23. The map in Figure 1 displays the locations. Table 2 contains monitor results for three different days recent to the test date.

**Results:**

**Table 1, Hexavalent Chromium Emisisons**

**March 29, 2017**

| Emissions Source | Concentration ($ng/m^3$) * |
|---|---|
| Furnace #17 | 2080 |
| Grinding Area | 442 |

* The concentrations are reported in the same units as the recent ambient air monitoring data (see Table 2).

**Table 2, Recent Ambient Air Monitoring Data ($ng/m^3$)**

| Date | Monitor 21 | Monitor 23 |
|---|---|---|
| 3/20/17 | 1.14 | 3.05 |
| 3/26/17 | 0.12 | 0.32 |
| 3/29/17 | 0.24 | 1.06 |

## EXECUTIVE SUMMARY

Source testing was conducted at Mattco Forge to identify the specific causes of elevated ambient hexavalent chromium levels measured recently very near to the facility. Furnace #17 and the grinding area were tested to determine if they were potential sources of the elevated ambient readings.

Both the furnace and grinding operations resulted in elevated hexavalent chromium emissions. Notably, the hexavalent chromium emissions from the furnace were 680 times the highest ambient air monitoring reading.

## INTRODUCTION

On March 29, 2017, Engineers from the South Coast Air Quality Management District (SCAQMD) Source Test Engineering (STE) branch conducted source testing at Mattco Forge, Inc. in Paramount, California. The purpose of the testing was to identify the specific causes of elevated ambient hexavalent chromium levels measured very near to the facility.

Operations at the facility were identified as processing chromium-containing materials. It is possible that the processing of these materials could cause hexavalent chromium emissions. The two potential sources that were tested were Furnace #17 and the grinding area.

According to the facility, the material in Furnace #17 contained 15.53% chromium. Nine parts, approximately 55 square inches in surface area each, were being heated in the furnace during testing. The stainless steel parts being ground contained 17.69% chromium.

Sources whose emissions are measured as greater than that of the downwind monitor are considered to be potential contributors to the hexavalent chromium measured by the monitor, with those exhibiting the greater concentrations more positively identified as contributors.

## EQUIPMENT AND PROCESS DESCRIPTION

Mattco Forge, Incorporated performs heat treating of stainless steel and non-stainless steel parts for the aerospace industry. Parts are heated in forge furnaces to a specified temperature endpoint dependent upon the product and are then subjected to presses to shape them to meet specific product parameters. Grinding is carried out to remove imperfections and to finish the product cycle.

Furnaces and presses are arranged so that heated parts may be removed at their appropriate temperature and shaped in an expedient manner. Testing was performed only on the heating process and the grinding process.

## SAMPLING AND ANALYTICAL PROCEDURES

Three sampling trains were utilized during testing. Train #10 was used for the testing of Furnace #17, Train #11 was used for the grinding area, and Train #18 was used as a blank sample.

The furnace did not have a stack, but instead had an outlet for the hot air controlled by a damper. The sampling probe was secured with the nozzle facing into the damper opening to collect emissions from the furnace as they were emitted into the atmosphere. Care was taken to prevent the probe from being stuck by the movement of the damper or for interfering with that movement. Because of the lack of a suitable stack, the testing was performed non-isokinetically.

The grinding area is largely enclosed, with a roof ridge vent above and a large roll-up door that is kept closed during grinding operations. The roof ridge vent is designed to allow hot air inside the building to vent to the atmosphere. During the test, the inlet tubing and nozzle were secured to a ladder above the grinding activities and the roll-up door was closed.

### *Hexavalent Chromium Sampling*

Testing was conducted based on California Air Resources Board Method 425 applied to the furnace exhaust and the grinding area, with the procedures of the method specific to stack sampling omitted. Two samples were taken at single non-isokinetic sample points as described above for informational purposes. A third sampling train was used as a blank. Each sampling train consisted of a sampling line, which was used to draw the stack sample from the source. The furnace sample used a quartz probe and nozzle. The sample was then drawn through two impingers each filled with an aqueous solution of 0.1N $NaHCO_3$ (per Section 21.2), an empty impinger, a 2” filter, and an impinger bubbler filled with tared silica gel. Each sampling train was connected to a leak free vacuum pump, a dry gas meter, and a calibrated orifice. The impingers were contained in an ice bath to condense water vapor and other condensable matter present in the sample stream (see Figure 2).

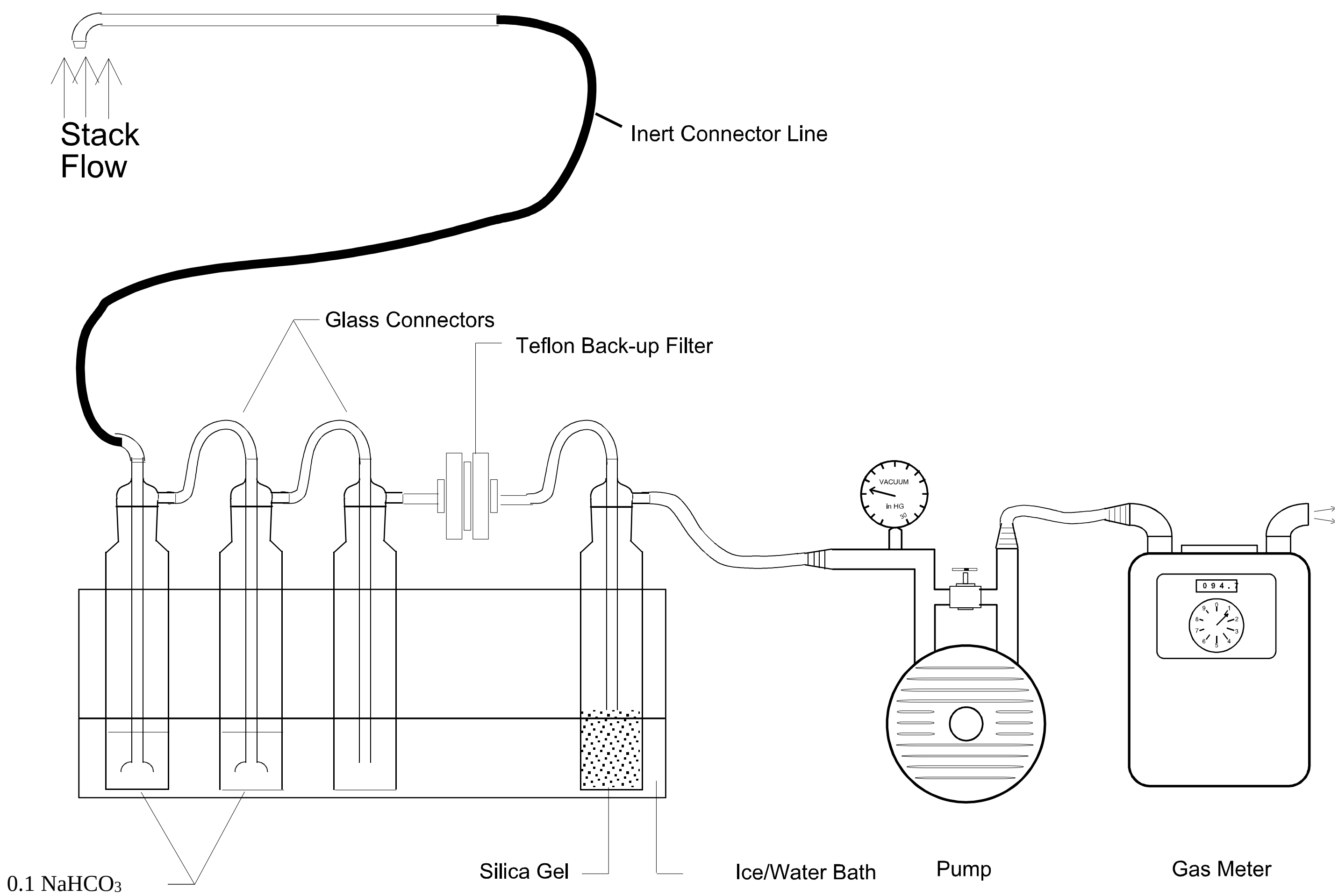
The samples were extracted using the sampling trains. The pH of the solution in the first impinger was measured after the test, but prior to recovery, at pH of at least 9 (the method requires a pH of 8.0 or higher). The impinger solutions were recovered within 24 hours and the SCAQMD laboratory analyzed the hexavalent chromium in the samples by CARB SOP MLD039. Hexavalent chromium deposited in the filter, sample line and impingers were extracted and analyzed by an Ion Chromatograph equipped with a post-column reactor (IC/PCR) and a visible wavelength detector. Moisture content was determined gravimetrically and volumetrically.

## DISCUSSION/TEST CRITIQUE

For purposes of interpreting the test results, the typical ambient Los Angeles Basin average for hexavalent chromium measured during the most recent SCAQMD Multiple Air Toxics Exposure Study (MATES) IV study is less than 0.1 ng/m$^3$. While all of the results are substantially higher than the background, it should be noted that it takes a significant volume of air at source concentrations substantially higher than the background to affect the ambient air levels. Ambient air levels measured at the monitors are also a function of distance away from the facility, due to air dilution, deposition, and meteorology. The intent of this test was to identify sources that are at least several times higher than the background levels to identify the major contributors and to provide a focus for potential remediation. The average ambient concentration adjacent to the facility was 0.99 ng/m$^3$ for the period surrounding the test date, as compared to the measured source concentrations from the facility, which were 2080 ng/m$^3$ and 442 ng/m$^3$ for the furnace and the grinding area, respectively. These elevated source concentrations are considered to indicate that the facility is contributing to the nearby elevated ambient concentrations.

***Figure 1: Facility and Ambient Monitor Location***

***Figure 2: CARB Method 425 Train Diagram***



# CHROMIUM CALCULATIONS

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 E. Copley Dr. Diamond Bar, California 91765-4182

Test No. 2 Test Date: 3/29/17

SOURCE TEST CALCULATIONS

Sampling Location: Mattco Forge - Furnace 17
Sample Train: 10 Input by: E. Padilla

SUMMARY

| | | |
|---|---|---|
| A. Average Traverse Velocity | #DIV/0! | fps |
| B. Gas Meter Temperature (Use 60 deg.F for Temp Comp. Meters) | 101.3 | deg F |
| C. Gas Meter Correction Factor | 0.9910 | |
| D. Average Orifice Pressure | 0.70 | "H₂0 |
| E. Nozzle Diameter | | inch |

| | | | | | |
|---|---|---|---|---|---|
| F1. Stack Diameter or Dimension #1 | | inch | M. Pitot Correction Factor | 0.84 | |
| F2. Stack Dim #2 (blank if circular) | | inch | N. Sampling Time | 180 | min |
| G. Stack Cross Sect. Area | 0.000 | ft2 | O. Nozzle X-Sect. Area | 0.00000 | ft2 |
| H. Average Stack Temp | #DIV/0! | deg F | P. Net Sample Collection | 0.00439 | mg |
| I. Barometric Pressure | 30.05 | "HgA | Q. Net Solid Collection | 0.00439 | mg |
| J. Gas Meter Pressure (I+(D/13.6)) | 30.10 | "HgA | R. Water Vapor Condensed | 57 | ml |
| K. Static Pressure | | "H₂0 | S. Gas Volume Metered | 80.679 | dcf |
| L. Total Stack Pressure (I+(K/13.6)) | 30.05 | "HgA | S2. Amp-hr | | amp-hr |

T. Corrected Gas Volume [(S x J/29.92) x 520/(460+B) x C ... 74.519 dscf

PERCENT MOISTURE/GAS DENSITY

U. Percent Water Vapor in Gas Sample ((4.64 x R)/((0.0464 x R) + T)) ... 3.43 %

V. Average Molecular Weight (Wet):

| Component | Vol. Fract. | | x | Moist. Fract. | x | Molecular Wt. | = | Wt./Mole |
|---|---|---|---|---|---|---|---|---|
| Water | 0.034 | | | 1.000 | | 18.0 | , | 0.62 |
| Carbon Dioxide | 0.00040 | Dry Basis | | 0.966 | | 44.0 | , | 0.02 |
| Carbon Monoxide | | Dry Basis | | 0.966 | | 28.0 | , | 0.00 |
| Oxygen | 0.20900 | Dry Basis | | 0.966 | | 32.0 | , | 6.46 |
| Nitrogen & Inerts | 0.791 | Dry Basis | | 0.966 | | 28.2 | , | 21.53 |
| | | | | | | | , | |
| | | | | | | | Sum | 28.62 |

FLOW RATE

| | | |
|---|---|---|
| W. Gas Density Correction Factor (28.95/V)^.5 | 1.01 | |
| X. Velocity Pressure Correction Factor (29.92/L)^.5 | 1.00 | |
| Y. Corrected Velocity (A x M x W x X) | #DIV/0! | fps |
| Z. Flow Rate (Y x G x 60) | #DIV/0! | cfm |
| AA. Flow Rate (Standard) {Z x (L/29.92) x [520/(460+H)]} | #DIV/0! | scfm |
| BB. Dry Flow Rate (AA x (U/100)) | #DIV/0! | dscfm |

SAMPLE CONCENTRATION/EMISSION RATE

| | | |
|---|---|---|
| CC. Sample Concentration [0.01543 x (P/T)] | 9.090E-07 | gr/dscf |
| DD. Sample Concentration [54,143xC 100 (Molecular Wt.)] | 4.92E-04 | ppm |
| EE. Sample Emission Rate (0.00857 x BB xCC) | 2.08014E+03 | ng/m3 |
| FF. Solid Emission Rate [(.0001322 x Q x BB)/T] | #DIV/0! | lb/hr |
| GG. Isokinetic Sampling Rate [(G x T x 100)/(N x O x BB)] | #DIV/0! | % |

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 E. Copley Dr. Diamond Bar, California 91765-4182

Test No. 1 Test Date: 3/29/17

SOURCE TEST CALCULATIONS

Sampling Location: Mattco Forge - Grinding Area
Sample Train: 11
Input by: E. Padilla

SUMMARY

| | | |
|---|---|---|
| A. Average Traverse Velocity | #DIV/0! | fps |
| B. Gas Meter Temperature (Use 60 deg.F for Temp Comp. Meters) | 89.7 | deg F |
| C. Gas Meter Correction Factor | 1.0024 | |
| D. Average Orifice Pressure | 0.70 | "$H_2O$ |
| E. Nozzle Diameter | | inch |

| | | | | | |
|---|---|---|---|---|---|
| F1. Stack Diameter or Dimension #1 | | inch | M. Pitot Correction Factor | 0.84 | |
| F2. Stack Dim #2 (blank if circular) | | inch | N. Sampling Time | 180 | min |
| G. Stack Cross Sect. Area | 0.000 | ft2 | O. Nozzle X-Sect. Area | 0.00000 | ft2 |
| H. Average Stack Temp | #DIV/0! | deg F | P. Net Hex Chrome Collection | 0.00097 | mg |
| I. Barometric Pressure | 30.05 | "HgA | Q. Hex Chrome Collection | 0.00097 | mg |
| J. Gas Meter Pressure (I+(D/13.6)) | 30.10 | "HgA | R. Water Vapor Condensed | 11 | ml |
| K. Static Pressure | | "$H_2O$ | S. Gas Volume Metered | 81.158 | dcf |
| L. Total Stack Pressure (I+(K/13.6)) | 30.05 | "HgA | S2. Amp-hr | | amp-hr |

T. Corrected Gas Volume [(S x J/29.92) x 520/(460+B) x C ........ 77.429 dscf

PERCENT MOISTURE/GAS DENSITY

U. Percent Water Vapor in Gas Sample ((4.64 x R)/((0.0464 x R) + T)) ........ 0.65 %

V. Average Molecular Weight (Wet):

| Component | Vol. Fract. | | x | Moist. Fract. | x | Molecular Wt. | = | Wt./Mole |
|---|---|---|---|---|---|---|---|---|
| Water | 0.007 | | | 1.000 | | 18.0 | , | 0.12 |
| Carbon Dioxide | 0.00040 | Dry Basis | | 0.993 | | 44.0 | , | 0.02 |
| Carbon Monoxide | | Dry Basis | | 0.993 | | 28.0 | , | 0.00 |
| Oxygen | 0.20900 | Dry Basis | | 0.993 | | 32.0 | , | 6.64 |
| Nitrogen & Inerts | 0.791 | Dry Basis | | 0.993 | | 28.2 | , | 22.15 |
| | | | | | | | , | |
| | | | | | | Sum | | 28.93 |

FLOW RATE

| | | |
|---|---|---|
| W. Gas Density Correction Factor (28.95/V)^.5 | 1.00 | |
| X. Velocity Pressure Correction Factor (29.92/L)^.5 | 1.00 | |
| Y. Corrected Velocity (A x M x W x X) | #DIV/0! | fps |
| Z. Flow Rate (Y x G x 60) | #DIV/0! | cfm |
| AA. Flow Rate (Standard) {Z x (L/29.92) x [520/(460+H)]} | #DIV/0! | scfm |
| BB. Dry Flow Rate (AA x (U/100)) | #DIV/0! | dscfm |

SAMPLE CONCENTRATION/EMISSION RATE

| | | |
|---|---|---|
| CC. Sample Concentration [0.01543 x (P/T)] | 1.933E-07 | gr/dscf |
| DD. Sample Concentration [54,143xC 100 (Molecular Wt.)] | 1.05E-04 | ppm |
| EE. Sample Emission Rate (0.00857 x BB xCC) | 4.423E+02 | ng/m3 |
| FF. Solid Emission Rate [(.0001322 x Q x BB)/T] | #DIV/0! | lb/hr |
| GG. Isokinetic Sampling Rate [(G x T x 100)/(N x O x BB)] | #DIV/0! | % |

**APPENDICES**

# APPENDIX A

## Field Data

**South Coast Air Quality Management District**

Test No. 17-336 Company: Mattco Forge Date: 3/29/17
Sampling Location: Furnace #17 Sample Train: #10

**Traverse Source Test Data**

Pre-Test Leak Check:
Filter: _______ cfm @ _______ "Hg vac
Probe: 0.01 cfm @ 15 "Hg vac
Pitot Tube Leak Check: Pass / Fail

Post-Test Leak Check:
Filter: _______ cfm @ _______ "Hg vac
Probe: 0.00 cfm @ 12" "Hg vac
Pitot Tube Leak Check: Pass / Fail

| Time | Sample Point # | Gas Meter Reading (dcf) Start: | Stack Velocity Head ("$H_2O$) | Stack Temp. °F | Calculated Velocity (fps) | Calculated Sampling Rate (cfm) | Calculated Orifice ΔP ("$H_2O$) | Probe Temp. °F | Filter Temp. °F | Imp. Temp. °F | Meter Temp. °F In | Meter Temp. °F Out | Vacuum " Hg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1102 | | 261.866 | | | | | | | | 50 | 86 | 84 | 2" |
| +10 | | 265.75 | | | | | | | | 50 | 90 | 87 | 2" |
| +20 | | 270.2 | | | | | | | | 45 | 93 | 89 | 3" |
| +30 | | 274.7 | | | | | | | | 47 | 97 | 91 | 3" |
| +40 | | 279.2 | | | | | | | | 48 | 99 | 94 | 3" |
| +50 | | 283.75 | | | | | | | | 50 | 101 | 96 | 3" |
| +60 | | 288.255 | | | | | | | | 47 | 103 | 97 | 3" |
| +70 | | 292.750 | | | | | | | | 51 | 105 | 100 | 3 |
| +80 | | 297.280 | | | | | | | | 46 | 106 | 101 | 3" |
| +90 | | 301.810 | | | | | | | | 49 | 106 | 102 | 3" |
| +100 | | 306.350 | | | | | | | | 48 | 108 | 103 | 3" |
| +110 | | 310.855 | | | | | | | | 46 | 108 | 104 | 3" |
| +120 | | 315.375 | | | | | | | | 45 | 109 | 105 | 3" |
| +130 | | 319.9 | | | | | | | | 51 | 109 | 106 | 3" |
| +140 | | 324.45 | | | | | | | | 55 | 110 | 107 | 3" |
| +150 | | 328.95 | | | | | | | | 53 | 110 | 107 | 3" |
| +160 | | 333.4 | | | | | | | | 54 | 110 | 107 | 3" |
| +170 | | 338.6 | | | | | | | | 53 | 110 | 107 | 3" |
| +180 | | 342.545 | | | | | | | | | | | |
| (Net Vol. Uncorr.) | | | Avg. | | | | | | | | | | |

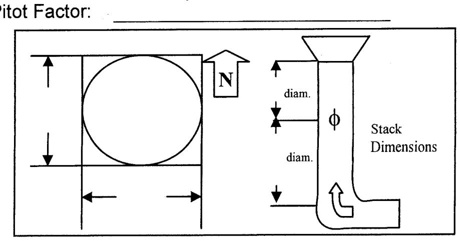
K-Factor: ___________ Stack Moisture: _________ Canister #: ___________ Start: _______ "Hg vac

Nozzle Diameter: ___________ "
Barometric Pressure: 30.05 " HgA
Static Pressure in Stack: + / - ___________ " $H_2O$

Recorded By: B Welch
Pitot Factor: ___________

Calibration Data

| | | |
|---|---|---|
| Inclined Manometer | | (Cal: N/A ) |
| Magnehelic No. | | (Cal: ) |
| Pitot Tube No. | | (Cal: ) |
| Potentiometer No. | N0315 | (Cal: 3-23-17) |
| Thermocouple No. | | (Cal: ) |
| Gas Meter No. | N0715 | (Cal: ) |
| Meter Corr. Factor: | 0.9910 | 3/23/17 |




Sampling Probe: Stainless Steel / Borosilicate / Quartz

Stack: Horizontal / Vertical Rectangular / Circular

Revision 01/09

**South Coast Air Quality Management District**

Test No. 17-336 Company: Mattco Forge Date: 3/29/17
Sampling Location: Grinding Area Sample Train: 11

**Traverse Source Test Data**

| Pre-Test Leak Check: | Post-Test Leak Check: |
|---|---|
| Filter: ____ cfm @ ____ "Hg vac | Filter: ____ cfm @ ____ "Hg vac |
| Probe: ∅ cfm @ 12 "Hg vac | Probe: ∅ cfm @ 15 "Hg vac |
| Pitot Tube Leak Check: N/A Pass / Fail | Pitot Tube Leak Check: Pass / Fail |

| Time | Sample Point # | Gas Meter Reading (dcf) | Stack | | Calculated | | | Probe Temp. °F | Filter Temp. °F | Imp. Temp. °F | Meter Temp. °F | | Vacuum " Hg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Start: 891.796 | Velocity Head ("$H_2O$) | Temp. °F | Velocity (fps) | Sampling Rate (cfm) | Orifice ΔP ("$H_2O$) | | | | In | Out | |
| 11⁰⁰ AM | | ~~848.09~~ | 2.60 | | | | ~~15~~ | | | 39 | 74 | 75 | 15 |
| +10 | | 898.09 | 2.15 | | | | | | | 41 | 79 | 75 | 12 |
| +20 | | 906.58 | 2.15 | | | | | | | 44 | 85 | 78 | 12 |
| +30 | | 912.79 | 2.15 | | | | | | | 45 | 86 | 78 | 12 |
| +40 | | 917.56 | 0.50 | | | | | | | 50 | 88 | 80 | 6 |
| +50 | | 921.54 | 0.49 | | | | | | | 53 | 89 | 82 | 3 |
| +60 | | 925.53 | 0.49 | | | | | | | 53 | 89 | 84 | 3 |
| +70 | | 929.48 | 0.49 | | | | | | | 52 | 91 | 86 | 3 |
| +80 | | 933.46 | 0.49 | | | | | | | 54 | 92 | 87 | 3 |
| +90 | | 937.44 | 0.49 | | | | | | | 49 | 94 | 89 | 3 |
| +100 | | 941.42 | 0.49 | | | | | | | 49 | 95 | 90 | 3 |
| +110 | | 945.39 | 0.49 | | | | | | | 50 | 95 | 90 | 3 |
| +120 | | 949.38 | 0.49 | | | | | | | 52 | 96 | 91 | 3 |
| +130 | | 953.38 | 0.49 | | | | | | | 52 | 96 | 92 | 3 |
| +140 | | 957.22 | 0.49 | | | | | | | 51 | 97 | 92 | 3 |
| +150 | | 961.16 | 0.49 | | | | | | | 53 | 97 | 93 | 3 |
| +160 | | 965.13 | 0.49 | | | | | | | 49 | 97 | 93 | 3 |
| +170 | | 969.02 | 0.49 | | | | | | | 51 | 97 | 93 | 3 |
| +180 | | 972.954 | 0.49 | | | | | | | 55 | 98 | 94 | 3 |
| (Net Vol. Uncorr.) | | | Avg. | | | | | | | | | | |

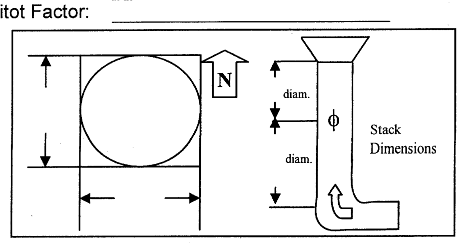
K-Factor: 0.5682 Stack Moisture: ________ Canister #: ________ Start: ________ "Hg vac

Nozzle Diameter: N/A "
Barometric Pressure: 30.05 " HgA
Static Pressure in Stack: + / - N/A " $H_2O$

Recorded By: SP
Pitot Factor: ________

Calibration Data

| | |
|---|---|
| Inclined Manometer ________ | (Cal: N/A ) |
| Magnehelic No. ________ | (Cal: ________ ) |
| Pitot Tube No. ________ | (Cal: ________ ) |
| Potentiometer No. N0314 | (Cal: 3/24/17 ) |
| Thermocouple No. ________ | (Cal: ________ ) |
| Gas Meter No. N0714 | (Cal: 3/24/17 ) |
| Meter Corr. Factor: 1.0024 | |




Sampling Probe: Stainless Steel / Borosilicate / Quartz

Stack: Horizontal / Vertical Rectangular / Circular

Revision 01/09

# APPENDIX B

District Laboratory Data

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**
**21865 Copley Dr., Diamond Bar, CA 91765-4182**
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**MONITORING & ANALYSIS**
**REPORT OF LABORATORY ANALYSIS**

**TO** Mike Garibay
Supervising A.Q. Engineer
Source Test & Engineering

**LABORATORY NO** 1708210

**SOURCE TEST NO** 17-336

**SAMPLE(S) DESCRIBED AS**
3 Hexavalent Chromium Trains

**DATE RECEIVED** 03/30/17

**RULE NO** NA

**SAMPLING LOCATION**
Facility ID 181199
Mattco Forge
7530 Jackson Street
Paramount, CA 90723

**REQUESTED BY** Wayne Stredwick

**DATE ANALYZED** 3/30/2017

**ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS**
**Moisture and Hexavalent Chromium by CARB 425 (Sodium Bicarbonate(NaHCO3) solution)**

| | TRAIN 11 | TRAIN 18 | TRAIN 10 |
|---|---|---|---|
| Moisture gain, g | 11 | 1.2 | 57 |
| Silica gel% expended | 95 | 0 | 95 |
| Filter gain, g | 0.0027 | -0.0007 | 0.0004 |
| Impinger 1 pH | 9-10 | 9 | 9 |
| Impinger 2 pH | 9-10 | 9 | 9 |
| Recovery notes | Tubing Only | Field Blank, No Tubing, No Probe | Probe & Tubing |
| $Cr^{+6}$ total ug | 0.97 | 0.00 | 4.39 |

NOTE (1) Additional significant figures provided for calculation purposes.

Reviewed By: [signature]
Joan Niertit, Principal A.Q. Chemist
Laboratory Services

Date Reviewed: 04/14/17

Approved By: [signature]
Aaron Katzenstein, Ph.D.
Senior Manager
Laboratory Services
(909) 396-2219

Date Approved: 04/14/17

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 Copley Dr., Diamond Bar, CA 91765-4182
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MONITORING & ANALYSIS
REPORT OF LABORATORY ANALYSIS

LABORATORY NO 1708210

REQUESTED BY Wayne Stredwick

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS
Moisture and Hexavalent Chromium by CARB 425 (Sodium Bicarbonate(NaHCO3) solution)

QUALITY CONTROL

BALANCE CHECK

| Lab No. | Result (g) | Limit (g) | Check Status |
|---|---|---|---|
| B17D007-CCV1 | 99.9999 | ±0.0005 | Pass |
| B17D007-CCV2 | 500.0 | ±0.2 | Pass |

CCV RECOVERIES

| Lab No. | Results (ppt) | Limit (%) | % Recovery |
|---|---|---|---|
| S17D005-CCV1 | 102 | 90-110 | 102 |
| S17D005-CCV2 | 95 | 90-110 | 95 |
| S17D005-CCV3 | 97 | 90-110 | 97 |
| S17D005-CCV4 | 97 | 90-110 | 97 |
| S17D005-CCV5 | 99 | 90-110 | 99 |
| S17D005-CCV6 | 98 | 90-110 | 98 |

REF B17D007
S17D005

## SOURCE TEST REQUEST FOR EQUIPMENT/ANALYSIS

| | | | |
|---|---|---|---|
| Company | Mattco Forge | Source Test No. | 17-336 |
| Address | 7530 Jackson Street, Paramount, CA 90723 | Request Date | March 23, 2017 |
| Basic Equipment | | Control Device | |
| Analysis/Equipment Requested By | Wayne Stredwick | Date Equipment Needed | March 28, 2017 |
| For Compliance, Rule(s) | | | |
| Other (specify) | Rule Development | Facility ID No. | 181199 |
| Dry Ice Needed ☑ | | Laboratory No. | 1708210 |

CAS 03/28/17

### SAMPLE EQUIPMENT ANALYSIS REQUEST

| Equipment Requested/ID # | Analysis Requested | Set ID |
|---|---|---|
| 3 ~~1~~ – Carb 425 Trains | Trains Nos. 10, 11, 18. | |
| (Use sodium bicarbonate solution and back filter) | Reference: Blue Book, Pages No 125, 126, 41 | |
| | #18: Field Blank (no tubing) | |
| | #11: tubing | |
| | #10: tubing + probe | |
| | → probe not supplied by lab, ST already had probe CAS 03/30/17 | |

### SAMPLE EQUIPMENT CHAIN OF CUSTODY

| Sample Equipment Set ID | From | To | For (S/T, Analysis, Cleanup, Not Used) | Date Received | Time |
|---|---|---|---|---|---|
| 10, 11, 18 | [signature] | [signature] | S/T | 3-28-17 | 12:55 |
| 10, 11, 18 | [signature] | [signature] | Analysis | 03/30/17 | 07:50 |
| 10, 11, 18 | [signature] | [signature] | Analysis | 04/03/17 | 13:00 |
| | | | | | |
| | | | | | |
| | | | | | |

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# APPENDIX C

## Equipment Calibrations

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**
**DRY GAS METER CALIBRATION WORKSHEET**

Page 1

DATE: March 24, 2017    PERFORMED BY: W. Stredwick

AMBIENT AIR 74 o F

PBAR: 29.87 In.Hg    DRY GAS METER ID : N0714

STANDARD DRY GAS METER ID#: 7812470

| TRIAL | CFM | TOTAL cubicF | TEMP | H2O PRESSURE IN | OUT | H2O | METER READ1 (in cubic F) | READ2 | TOTAL cubicF | HRS | MIN | SEC | TIME Decimal | UC FL RT CFM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1/4 | 1.6 | 74 | 1.2 | 1.2 | 1.2 | 343.2 | 344.8 | 1.6 | | 5 | 3.00 | 5.05 | 0.3168 |
| 2 | 1/4 | 1.1 | 74 | 1.2 | 1.2 | 1.2 | 345.2 | 346.3 | 1.1 | | 3 | 29.00 | 3.48 | 0.3158 |
| 3 | 1/4 | 1.3 | 74 | 1.2 | 1.2 | 1.2 | 346.4 | 347.7 | 1.3 | | 4 | 7.00 | 4.12 | 0.3158 |
| 1 | 1/2 | 4.7 | 74 | 2.8 | 2.8 | 2.8 | 349.3 | 354.0 | 4.7 | | 8 | 51.00 | 8.85 | 0.5311 |
| 2 | 1/2 | 11.5 | 74 | 2.8 | 2.8 | 2.8 | 354.6 | 366.1 | 11.5 | | 21 | 46.00 | 21.77 | 0.5283 |
| 3 | 1/2 | 2.9 | 74 | 2.8 | 2.8 | 2.8 | 366.2 | 369.1 | 2.9 | | 5 | 18.00 | 5.30 | 0.5472 |
| 1 | 3/4 | 3.8 | 74 | 5.2 | 5.2 | 5.2 | 370.4 | 374.2 | 3.8 | | 4 | 53.00 | 4.88 | 0.7782 |
| 2 | 3/4 | 5.1 | 74 | 5.2 | 5.2 | 5.2 | 374.4 | 379.5 | 5.1 | | 6 | 30.00 | 6.50 | 0.7846 |
| 3 | 3/4 | 4.9 | 74 | 5.2 | 5.2 | 5.2 | 379.8 | 384.7 | 4.9 | | 6 | 14.00 | 6.23 | 0.7861 |
| 1 | 1 | 5.2 | 74 | 9 | 9 | 9.0 | 386.3 | 391.5 | 5.2 | | 5 | 9.00 | 5.15 | 1.0097 |
| 2 | 1 | 7.0 | 74 | 9 | 9 | 9.0 | 391.7 | 398.7 | 7.0 | | 6 | 56.00 | 6.93 | 1.0096 |
| 3 | 1 | 6.5 | 74 | 9 | 9 | 9.0 | 399.0 | 405.5 | 6.5 | | 6 | 25.00 | 6.42 | 1.0130 |

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**
**DRY GAS METER CALIBRATION WORKSHEET**

Page 2

DATE: March 24, 2017    PERFORMED BY: W. Stredwick

DRY GAS METER ID : N0714

| TRIAL | CFM | TOTAL cubicF | TEMP | H2O PRESSURE IN | OUT | H2O | METER READ1 (in cubic F) | READ2 | CubicF | HRS | MIN | SEC | TIME Decimal | UC FL RT CFM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1/4 | 1.7 | 74 | 1.2 | 0.4 | 0.8 | 810.0 | 811.7 | 1.7 | | 5 | 20.00 | 5.33 | 0.3188 |
| 2 | 1/4 | 1.2 | 74 | 1.2 | 0.4 | 0.8 | 812.0 | 813.2 | 1.2 | | 3 | 48.00 | 3.80 | 0.3158 |
| 3 | 1/4 | 1.2 | 74 | 1.2 | 0.4 | 0.8 | 813.4 | 814.6 | 1.2 | | 3 | 46.00 | 3.77 | 0.3186 |
| 1 | 1/2 | 4.9 | 74 | 2.8 | 1.0 | 1.9 | 816.2 | 821.1 | 4.9 | | 9 | 13.00 | 9.22 | 0.5316 |
| 2 | 1/2 | 11.5 | 74 | 2.8 | 1.0 | 1.9 | 821.5 | 833.0 | 11.5 | | 21 | 50.00 | 21.83 | 0.5267 |
| 3 | 1/2 | 2.9 | 74 | 2.8 | 1.0 | 1.9 | 833.2 | 836.1 | 2.9 | | 5 | 29.00 | 5.48 | 0.5289 |
| 1 | 3/4 | 4.0 | 74 | 5.2 | 2.0 | 3.6 | 837.4 | 841.4 | 4.0 | | 5 | 6.00 | 5.10 | 0.7843 |
| 2 | 3/4 | 5.2 | 74 | 5.2 | 2.0 | 3.6 | 841.6 | 846.8 | 5.2 | | 6 | 36.00 | 6.60 | 0.7879 |
| 3 | 3/4 | 4.8 | 74 | 5.2 | 2.0 | 3.6 | 847.0 | 851.8 | 4.8 | | 6 | 5.00 | 6.08 | 0.7890 |
| 1 | 1 | 5.4 | 74 | 9.0 | 3.1 | 6.1 | 853.4 | 858.8 | 5.4 | | 5 | 19.00 | 5.32 | 1.0157 |
| 2 | 1 | 6.7 | 74 | 9.0 | 3.1 | 6.1 | 859.5 | 866.2 | 6.7 | | 6 | 35.00 | 6.58 | 1.0177 |
| 3 | 1 | 6.3 | 74 | 9.0 | 3.1 | 6.1 | 866.5 | 872.8 | 6.3 | | 6 | 11.00 | 6.18 | 1.0189 |

DATE: March 24, 2017

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**
**DRY GAS METER CALIBRATION WORKSHEET**

Page 3

DATE : March 24, 2017
PERFORMED BY: T.Nguyen

DRY GAS METER COEFFICIENT CALCULATIONS

STANDARD DRY GAS METER ID#: 7812470
With Coefficient of 1.0000

DRY GAS METER ID : N0714

| UC FL RT CFM | TRIAL | CFM | U/C FlowRate | TEMP | H2O | Corrected FlowRate | U/C FlowRate | TEMP | H2O | Corrected FlowRate | COEF | AVE: | OVERALL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.3168 | 1 | 1/4 | 0.3168 | 74 | 1.2 | 0.3089 | 0.3188 | 74 | 0.8 | 0.3105 | 0.9950 | 0.9960 | 1.0024 |
| 0.3158 | 2 | 1/4 | 0.3158 | 74 | 1.2 | 0.3079 | 0.3158 | 74 | 0.8 | 0.3076 | 1.0010 | | |
| 0.3158 | 3 | 1/4 | 0.3158 | 74 | 1.2 | 0.3079 | 0.3186 | 74 | 0.8 | 0.3103 | 0.9922 | | |
| 0.5311 | 1 | 1/2 | 0.5311 | 74 | 2.8 | 0.5198 | 0.5316 | 74 | 1.88 | 0.5192 | 1.0012 | 1.0145 | |
| 0.5283 | 2 | 1/2 | 0.5283 | 74 | 2.8 | 0.5172 | 0.5267 | 74 | 1.88 | 0.5144 | 1.0053 | | |
| 0.5472 | 3 | 1/2 | 0.5472 | 74 | 2.8 | 0.5356 | 0.5289 | 74 | 1.88 | 0.5165 | 1.0369 | | |
| 0.7782 | 1 | 3/4 | 0.7782 | 74 | 5.2 | 0.7662 | 0.7843 | 74 | 3.6 | 0.7692 | 0.9960 | 0.9986 | |
| 0.7846 | 2 | 3/4 | 0.7846 | 74 | 5.2 | 0.7725 | 0.7879 | 74 | 3.6 | 0.7727 | 0.9997 | | |
| 0.7861 | 3 | 3/4 | 0.7861 | 74 | 5.2 | 0.7740 | 0.7890 | 74 | 3.6 | 0.7739 | 1.0002 | | |
| 1.0097 | 1 | 1 | 1.0097 | 74 | 9 | 1.0033 | 1.0157 | 74 | 6.05 | 1.0021 | 1.0012 | 1.0006 | |
| 1.0096 | 2 | 1 | 1.0096 | 74 | 9 | 1.0032 | 1.0177 | 74 | 6.05 | 1.0041 | 0.9991 | | |
| 1.0130 | 3 | 1 | 1.0130 | 74 | 9 | 1.0066 | 1.0189 | 74 | 6.05 | 1.0052 | 1.0013 | | |

DRY GAS METER ID : N0714
DATE: March 24, 2017

CORRECTION FACTOR: 1.0024

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
DATA SHEET FOR THERMOCOUPLE/POTENTIOMETER CALIBRATION

Field Meter STQC# : N0314 + N0315
Ref. Thermometer # : ASTM 08343
Temperature Source(s): Jofra Furnace

Date: 3-24-17
Calibration By: WS
Calibration Period:
Semiannual X
Bimonthly____
Other____

| | | N0314 Lead Wire STQC#____ | | | | N0315 Lead Wire STQC#____ | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Temp.* | A | B | | (B-A)100 A ** | | B | | (B-A)100 A ** | | |
| Sensor STQC# | Ref. Temp. | Ch#1 | Ch#2 | Ch#1 | Ch#2 | Ch#1 | Ch#2 | Ch#1 | Ch#2 | COMMENTS |
| 10102 | 32 | 32 | 32 | | | 32 | 32 | | | |
| 20108 | 33 | 33 | 33 | | | 33 | 33 | | | |
| 50111 | 33 | 33 | 33 | | | 33 | 33 | | | |
| 20202 | 33 | 33 | 33 | | | 33 | 33 | | | |
| C0112 | 33 | 33 | 33 | | | 33 | 32 | | | |
| | | | | | | | | | | |
| 10102 | 211 | 211 | 212 | | | 212 | 212 | | | |
| 20108 | 211 | 211 | 211 | | | 211 | 211 | | | |
| 50111 | 211 | 211 | 211 | | | 211 | 211 | | | |
| 20202 | 212 | 215 | 214 | | | 212 | 212 | | | |
| C0112 | 212 | 211 | 211 | | | 212 | 211 | | | |
| | | | | | | | | | | |
| 10102 | 612 | 611 | 612 | | | 611 | 611 | | | |
| 20108 | 611 | 610 | 611 | | | 612 | 611 | | | |
| 50111 | 612 | 611 | 611 | | | 612 | 612 | | | |
| 20202 | 611 | 611 | 611 | | | 612 | 612 | | | |
| C0112 | 612 | 612 | 611 | | | 612 | 611 | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

* All temperatures are in degrees F.
**Percent (%) difference should not exceed +/- 1.5%.

Page Number____