ASTM D6886 and R1113

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Key Similarities Between ASTM D6886 and AQMD M313

	ASTM D6886	AQMD M313
VOC Analysis	Direct	Direct
Instrumentation	Gas chromatograph	Gas chromatograph
Quantitation	Flame ionization detector	Flame ionization detector
Sample Preparation	Dilution (~1:15)	Dilution (~1:10)
Dilution Solvent	THF, methanol, acetone	THF, methanol
Sample Introduction	Direct injection	Direct injection
Internal Std	EGDE or others	EGDE

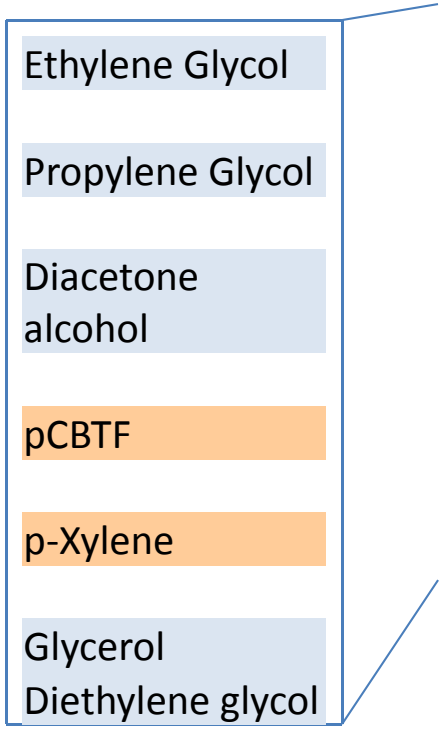
Key Differences Between ASTM D6886 and AQMD M313

	ASTM D6886	AQMD M313
GC column	DB5 or HP5 or equivalent	DB624 or equivalent
Compound ID	Retention time, formulation data, mass spec , SPME	Simultaneous mass spec
Inlet discrimination adjustment	Not required	Required to be within 15%
GC endpoint	20 min (MeP elutes at 18.3 min)	Methyl palmitate first excluded peak
Data processing	Use texanol as default, $RRF_{texanol}$=1.4	Use triglyme as default, $RRF_{triglyme}$=0.75
Petroleum distillates	Not specified	Calculate using hydrocarbon slices
QC	Not specified	IOM (BFB, triglyme, HCs) CSV (4 Surrogates) CCV (Target Compounds > 3 g/L) Spiked Surrogates Recovery

Compound Elution Order on DB5 and DB624 Columns

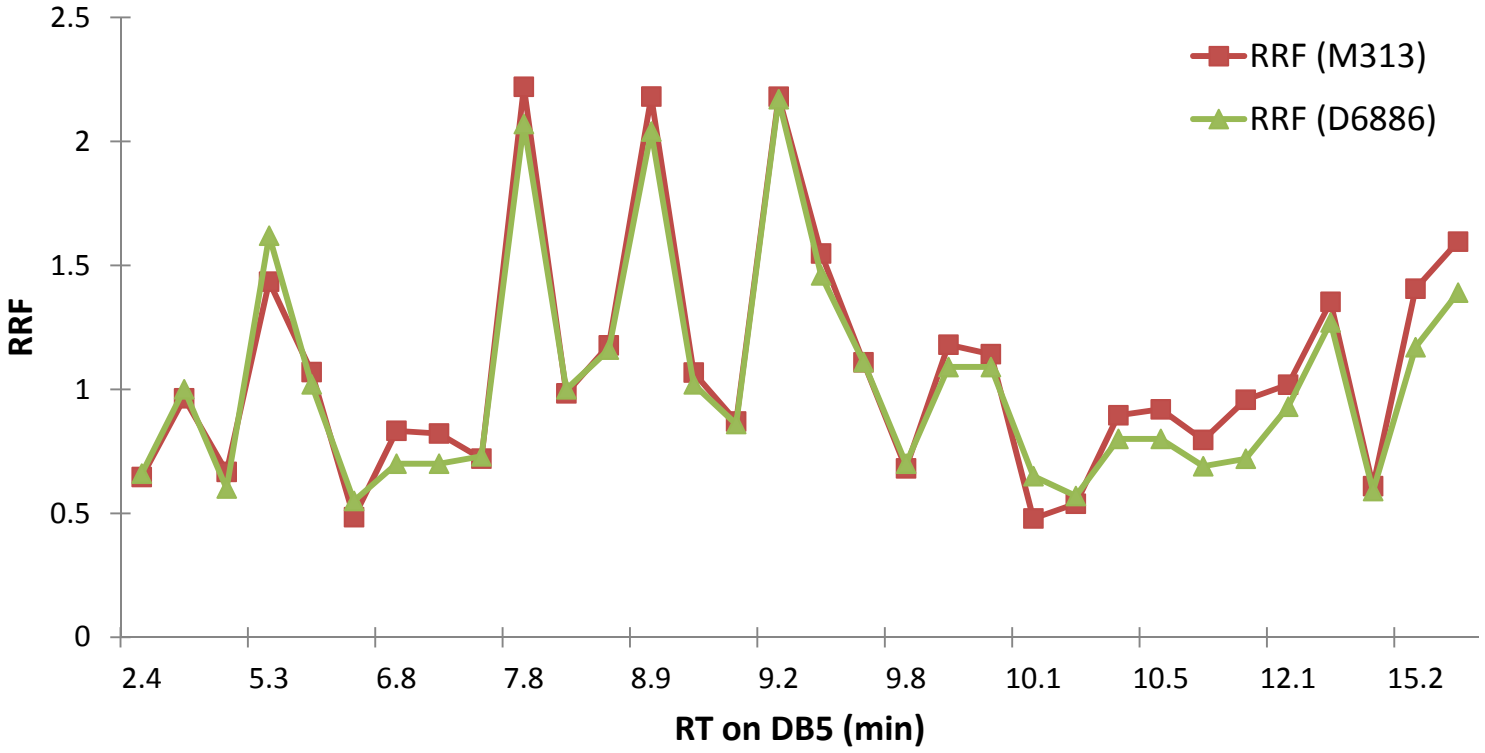
Elutes later on DB624

Elutes earlier on DB624



Elution order on DB5 column	Elution order on DB624 column
Methanol	Methanol
Ethanol	Ethanol
Methyl acetate	Methyl acetate
THF	IPA
2-Methyl-1-propanol	THF
IPA	2-Methyl-1-propanol
Ethylene Glycol	Methyl methacrylate
Methyl methacrylate	2-Ethoxyethanol
2-Ethoxyethanol	EGEE
EGEE	Toluene
Propylene Glycol	Ethylene Glycol
Toluene	EGDE
EGDE	Propylene Glycol
EGMPE, EP	Butyl acetate
Butyl acetate	EGMPE, EP
Diacetone alcohol	pCBTF
Ethyl benzene	Ethyl benzene
pCBTF	p-Xylene
PGMEA	PGMEA
p-Xylene	Diacetone alcohol
2-Heptanone	2-Heptanone
EGBE	EGBE
DEGME	PBGE, PnB
PBGE, PnB	Propylene glycol butyl ether
Propylene glycol butyl ether	DEGME
Glycerol	DPGME
Diethylene glycol	DEGEE
DPGME	Dipropylene Glycol Methyl Ether
Dipropylene Glycol Methyl Ether	Diethylene glycol
DEGEE	Glycerol
NMP	NMP
DEGBE	DEGBE
2-(2-Ethylhexyl)ethanol	2-(2-Ethylhexyl)ethanol
Texanol	Texanol
Tetraethylene glycol	Tetraethylene glycol
TXIB	TXIB
2-Ethylhexyl benzoate	2-Ethylhexyl benzoate
Methyl palmitate	Methyl palmitate
Dibutyl phthalate	Dibutyl phthalate

RRF Values Are Similar Between The Two Methods



In Most Cases, Results Will Be The Same Using Either Column

1. The elution order for most compounds are the same on both columns, There are noticeable differences in elution orders for some compounds (small glycols).

2. The minor differences in elution order will NOT result in a difference in final results, unless there is a significant elution order change near methyl palmitate endpoint.

Required Method Changes for ASTM D6886 to be Included

1. Use triglyme relative response factor (RRF) as default

2. Methyl palmitate as endpoint

3. DB624 column is preferred, if use DB5 column, need to know compound elution order in DB624 around the endpoint

Additional Requirements for ASTM D6886 to be Included

1. Treat petroleum distillates using hydrocarbon slices
2. Do not count compounds less than 0.1 g/L using triglyme RRF
3. Adjust and maintain inlet discrimination to be within 15%
4. To ensure accuracy of compound identification and RRFs, CCV standards is required for compound greater than 3 g/L in the sample.

Questions?

For More Information on Test Method

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