

## A2LA Assessor Environmental Method Checklist

### *Oil and Grease (O&G)*

Item	Section 1 - Personnel	Reference	Yes-No or NA	
1.1	Does the analyst(s) interviewed meet the job description position requirements, training and qualifications for performing the test? Supervisor: _____ Technician: _____	(G25)6.1		

Item	Section 2 - Equipment & Facilities	Reference	Yes-No or NA	
2.1	Is a source of vacuum available?	(CAW)413.1.5.2(1978)		
2.2	Is a water bath or equivalent available?	(CAW)413.1.7.7(1978)		
2.3	Is a balance calibrated to $\pm 10\%$ @2mg, & $\pm 0.5\%$ @1000mg using class S(2) weights?	(OOW)10.0(4/95)		
2.4	Is an infrared scanning or fixed wavelength spectrophotometer available?	(CAW)418.1.5.3(1978)		
2.5	Are sodium chloride or infrared grade glass cells of path lengths of 10mm, 50mm and 100mm available?	(CAW)418.1.5.4(1978)		
2.6	Is a scanning wavelength spectrophotometer used to scan standard and samples from 3200 $\text{cm}^{-1}$ to 2700 $\text{cm}^{-1}$ ?	(CAW)413.2.7.8(1978)		

Item	Section 3 - Method	Reference	Yes-No or NA	
3.1	Is the sample volume measured and recorded by marking the water meniscus on the bottle and measuring after all the sample and bottle washings are completed?	(CAW)413.1.7.1(1978)		
3.2	Are three rinses of 30mL of solvent used to wash the sample bottle and extract the sample in the separatory funnel?	(CAW)413.1.7.4,7.5 (1978)		
3.3	Is sodium sulfate, anhydrous, used to remove water from the solvent?	(CAW)413.1.6.3(1978)		
3.4	Is 85% purity, 99.0% min. saturated C6 isomers, with residue of less than 1 mg/L n-Hexane used as the solvent?	(OOW)7.3(4/95)		
3.5	Is hexadecane/stearic acid (1:1) prepared in acetone at a concentration of 4 mg/mL and used as a spiking solution?	(OOW)7.10(4/95)		

**Oil and Grease (O&G) (contd.)**

3.6	Is degradation of the spiking solution checked by placing 5.00 ±0.05 mL in a tared weighing pan, evaporating & weighing the residue to ensure a weight of 40 ± 1 mg?	(OOW)7.12(4/95)		
3.7	Are the boiling flasks evacuated under vacuum for 15 seconds to remove vapor, wiped to remove moisture and fingerprints and cooled in a desiccator for 30 minutes?	(CAW)413.1.7.8(1978)		
3.8	Is the residue measured to a constant weight and recorded?	(CAW)413.1.7.8(1978)		
3.9	Is the reference oil made from n-hexadecane, isooctane and chlorobenzene?	(CAW)418.1.6.5(1978)		
3.10	Is the reference oil made from isooctane, hexadecane, and benzene?	(SM18)5520C,3.d (1992)		
3.11	Is corn oil used for the reference sample solution?	(SW846)9071A,8.4 (9/94)		
3.12	Is the absorbance maximized for the working standards at about 2930 cm-1?	(CAW)418.1.7.8(1978)		
3.13	Is the appropriate cell pathlength used for measurement and documented? 10 mm = 2 - 4 mg; 50 mm= 0.5 - 8 mg; 100 mm = 0.1 - 4 mg	(CAW)418.1.7.7(1978)		
3.14	Is a calibration plot prepared of absorbance versus mg petroleum hydrocarbon per 100 mL solution?	(CAW)418.1.7.8(1978)		
3.15	Is the solvent distilled, evaporated and collected for reuse by immersing the boiling flask in water at 70°C and is the temperature documented?	(CAW)413.1.7.7(1978)		
3.16	Is the soxhlet extraction performed at a rate of 20 cycles per hour for 4 hours?	(SM18)5520D,4(1992)		

Item	Section 4 - Sample Handling Practices	Reference	Yes-No or NA	
4.1	Is the sample collected in a one liter glass bottle as a grab sample?	(CAW)413.1.4.1(1978)		
4.2	Is the sample preserved to a pH of less than 2 with H <sub>2</sub> SO <sub>4</sub> or HCl and refrigerated to 4°C when analysis is delayed more than a few hours?	(CAW)413.1.4.1(1978)		
4.3	Is the pH of the sample checked to be sure the pH is less than 2 and documented?	(CAW)413.1.7.1(1978)		
4.4	Is more acid added, and amount recorded when the pH is not less than 2?	(CAW)413.1.7.1(1978)		
4.5	Is the sample preserved with HCl or H <sub>2</sub> SO <sub>4</sub> to pH of less than 2 and analyzed within 28 days from sample collection?	(CFR136)1/31/94		
4.6	Are samples refrigerated at 0-4°C from time of collection to extraction and analyzed within 28 days from date and time of collection?	(OOW)8.4,5(4/95)		
4.7	Are sample bottles cleaned by detergent water wash, tap water rinse, capped with aluminum foil and baked at 200-205°C for a minimum of 1 hr or solvent rinsed in place of baking?	(OOW)6.1.2.1(4/95)		

Item	Section 5 - Quality Control Practices	Reference	Yes-No or NA	
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**Oil and Grease (O&G) (contd.)**

5.1	Is an independent check standard used to verify calibration every 15 samples?	(SW846)9070,8.3 (9/86)		
5.2	Is a spike duplicate analyzed every 10 samples if possible?	(SW846)9070,8.4 (9/86)		
5.3	Is one blank per batch or every twenty samples prepared and analyzed?	(SW846)9071A,8.2 (9/94)		
5.4	Is one matrix duplicate and matrix spike processed every twenty samples?	(SW846)9071A,8.3 (9/94)		
5.6	Is the analysis of the lab blank performed to assess system performance near the method detection limit or reporting limit?	(OOW)9.2.1(4/95)		
5.7	Is the initial precision and accuracy (PAR) for the hexane extraction method as follows: Precision 10%; Recovery 83-101%	(OOW)9.2.2(4/95)		
5.8	Is the ongoing quality control criteria for the hexane extraction method as follows: Recovery MS/MSD 79-114%; RPD MS/MSD 18%; Recovery spiking solution 79-114%	(OOW)9.3.4-6(4/95)		
5.9	Is the analytical batch of 10 samples accompanied by a laboratory blank, ongoing precision and accuracy sample, matrix spike & matrix spike duplicate?	(OOW)9.1.7(4/95)		
5.10	Is the balance calibration verified after every 14 or fewer measurements?	(OOW)9.5(4/95)		
5.11	Is a quality control sample from a source different from the spiking solution used to verify the spiking solution concentration?	(OOW)9.7(4/95)		
5.12	Is solvent recovery practiced?	(OOW)11.4.1(4/95)		
5.13	is solvent purity demonstrated?	(OOW)11.4.1(4/95)		