

## EPA Method 15/16 Sulfur Compounds

EPA Method 15 and Method 16 are used for the analysis of organic sulfur compounds collected on-site or in Tedlar bags. The method uses a flame photometric detector (FPD) and has been modified by EAS to have a special Teflon concentrator with cryotrap to concentrate the sample so that a detection limit of 0.5 ppbv can be obtained. The sample is analyzed using a fused silica capillary column for the identification and quantification of 20 sulfur compounds.

The modifications to the method are the sample introduction system, the sample collection procedure, the target list, the calibration procedure, and the QC criteria.

**Table 13.12a**  
**Summary of QC Criteria for EPA Method 15 and Method 16**

Parameter	EAS EPA 15/16 Modified	EPA 15/16
Initial Calibration	3-point minimum initial calibration for 20 compound list. See Table 13.12b	3-point minimum initial calibration for H <sub>2</sub> S, COS, CS <sub>2</sub> Standards run in triplicate, agree within 5% of their mean.
Calibration Check Sample (CCS)	Secondary source H <sub>2</sub> S calibration standard	Not specified
Continuing Calibration Verification (CCV)	Daily (24 hours) See Table 13.12.b Calibration Verification performed at the beginning and end of each daily analytical batch.	Daily (24 hours) Standard run in triplicate, agree within 5% of their mean.
Method Blank	<3x MDL	Not Specified
Laboratory Control Spike	1 per Daily Batch See Table 13.12b	Not Specified
Duplicate Lab Control Dup Sample	With each 20 samples See Table 13.12b	Not Specified
Holding Times Silico Canister	Tedlar Bag: 72 hours 7 days	Not Specified

**Table 13.12b**  
**EPA Method 15 and Method 16 Compound List**

Analyte	MDL ppbV	LOQ ppbV	Criteria		
			ICAL/ CCV %D	LCS %R	Duplicate %RPD
Hydrogen Sulfide	1	5	<30	70-130	<30
Carbonyl Sulfide	1	5	<30	70-130	<30
Methyl Mercaptan	1	5	<30	70-130	<30
Ethyl Mercaptan	1	5	<30	70-130	<30
Dimethyl Sulfide	1	5	<30	70-130	<30
Carbon Disulfide	1	5	<30	70-130	<30
i-Propyl Mercaptan	1	5	<30	70-130	<30
Ethyl Methyl Sulfide	1	5	<30	70-130	<30
n-Propyl Mercaptan	1	5	<30	70-130	<30
Thiophene	1	5	<30	70-130	<30
Isobutyl Mercaptan	1	5	<30	70-130	<30
Diethyl Sulfide	1	5	<30	70-130	<30
t-Butyl Mercaptan	1	5	<30	70-130	<30
n-Butyl Mercaptan	1	5	<30	70-130	<30
Dimethyl Disulfide	1	5	<30	70-130	<30
3-Methylthiophene	1	5	<30	70-130	<30
Tetrahydrothiophene	1	5	<30	70-130	<30
2,5-Dimethylthiophene	1	5	<30	70-130	<30
Diethyl Disulfide	1	5	<30	70-130	<30
2-Ethylthiophene	1	5	<30	70-130	<30