

EPA Instrumental Test Methods as Defined by 40 CFR Part 60

# EPA Method	Test Method Determines	EPA Protocol Components	Zero Gas*
3A*	O ₂ % & CO ₂ %	O ₂ % &/or CO ₂ % in N ₂ or mixtures of SO ₂ ppm &/or NO ₂ ppm + O ₂ % &/or CO ₂ % in N ₂	Defined by CFR 40 72.2
3 & 3B	O ₂ % & CO ₂ % using an ORSAT	O ₂ % &/or CO ₂ % in N ₂ for Audit	
3C	CO ₂ %, O ₂ %, N ₂ % & CH ₄ ppm using a thermal conductivity detector (TCD) gas chromatograph	CO ₂ , CH ₄ , N ₂ , O ₂ , and other gas components	Carrier Gas. Helium, high-purity
6C*	SO ₂ ppm from stationary sources	SO ₂ ppm in Air or N ₂ SO ₂ ppm &/or O ₂ % &/or CO ₂ % in N ₂	Defined by CFR 40 72.2
7E*	NO _x ppm from stationary sources	NO _x ppm in N ₂ other mixtures may be used if no interference is caused. NO ₂ for Converter Efficiency	Defined by CFR 40 72.2
10*	CO ppm from stationary sources	CO ppm in N ₂ other mixtures may be used if no interference is caused	Defined by CFR 40 72.2
10A	CO ppm CEM at petroleum refinery	CO ppm in N ₂	Defined by CFR 40 72.2
10B	CO ppm from stationary sources	CO ppm in N ₂ & CH ₂ in air	(Helium zero/ Hydrogen zero)
15	TRS Emissions from sulfur recovery plants in petroleum refinery	H ₂ S in N ₂ & COS in N ₂ & CS ₂ in N ₂ traceable	<0.5 ppm TRS with <10 ppm H ₂ O & (Oxygen Zero / Zero Nitrogen)
15A	TRS Emissions from sulfur recovery plants in petroleum refinery	COS in N ₂	<50 ppb TRS with <10 ppm Hydrocarbons
16	TRS Emissions from Kraft Pulp Mills	H ₂ S in N ₂ & MeSH in N ₂ & DMS in N ₂ & DMDS in N ₂ traceable	<50 ppb TRS with <10 ppm Hydrocarbons
16A	TRS Emissions from Kraft Pulp Mills	H ₂ S in N ₂	<50 ppb TRS with <10 ppm Hydrocarbons
16B	TRS Emissions from Kraft Pulp Mills	SO ₂ in N ₂ & H ₂ S in N ₂	<50 ppb TRS with <10 ppm Hydrocarbons
18	Gaseous Organic Compound Emissions by Gas Chromatography	VOC ppm in N ₂ <1-2% or NIST traceable	Defined by CFR 51 Appendix M Method 205
21	Volatile Organic Compound Leaks	VOC ppm in N ₂ or Air <2%	<10 ppm VOC
25	Total Gaseous Nonmethane Organic Emissions (TGNMO) as Carbon	CO, CH ₄ , C ₂ H ₆ , CO ₂ , hexane, toluene, and methanol each in air <1%	He, Air & O ₂ <1ppm HC & CO ₂ <1ppm & <0.1ppm HC
25A	Total Gaseous Organic Emissions using FID	C ₂ H ₆ , C ₃ H ₈ , C ₄ H ₁₀ or appropriate in N ₂ or Air <2%	Defined by CFR 51 Appendix M Method 205
25B	Total Gaseous Organic Emissions using NDIR	C ₂ H ₆ , C ₃ H ₈ , C ₄ H ₁₀ or appropriate in N ₂ or Air <2%	Defined by CFR 51 Appendix M Method 205
25C	Non Methane Organic Compounds (NMOC) in MSW landfill gases	CO, CH ₄ , C ₃ H ₈ , CO ₂ , hexane, toluene, and methanol each in air <1%	<10 ppm VOC
25D	Volatile Organic Concentration of Waste Samples	% propane and % 1,1-dichloroethylene in N ₂	N ₂ , Air & O ₂ <1ppm C
25E	Phase Organic Concentration in Waste Samples	% propane in N ₂ or Air NIST traceable	N ₂ , Air & O ₂ zero grade <ppm C
30A	Hg ⁰ µg/m ³ from stationary sources	Hg ⁰ & HgCl ₂ µg/m ³ in N ₂ or Air NIST traceable	No measurable Hg
30B	Hg ⁰ µg/m ³ from stationary sources	Hg ⁰ & HgCl ₂ µg/m ³ in N ₂ or Air NIST traceable	No measurable Hg

*These test methods were revised in August 2006 and advise using Zero Air / Zero Nitrogen that fits the definition of CFR 40 72.2 as the low point, oppose to a low level concentration pollutant.

EPA PS#	GEM Performance Specification for	Components (recommended but need not be certified)	Zero Gas (need not be certified)
PS 2	SO ₂ ppm &/or NO ₂ ppm	SO ₂ ppm &/or NO ₂ ppm in N ₂	
PS 3	O ₂ % &/or CO ₂ %	O ₂ % &/or CO ₂ % in N ₂ for Audit	
PS 4	CO ppm	1000 CO ppm on N ₂	
PS 4A	CO ppm	<200 CO ppm on N ₂	
PS 5	TRS ppm	H ₂ S ppm or other TRS in N ₂	
PS 7	TRS ppm	H ₂ S ppm or other TRS in N ₂	
PS 8	VOC ppm	CH ₄ , C ₂ H ₆ , C ₃ H ₈ , C ₄ H ₁₀ ppm or appropriate in N ₂ or Air	
PS 9	Specific VOC ppm by GC	Specific VOC ppm in N ₂ or Air <2%	Defined by CFR 40 72.2
PS 12	Hg	Hg in N ₂	
PS 12A	Hg	Hg in N ₂	
PPS 011 ETV Verification	NH ₃ ppm	NH ₃ in N ₂ NIST or N _m <3%	

Proposed Method 322 - HCl Emissions from Portland Cement Kilns by GFCIR 3/11/98 (WordPerfect version).

Proposed Method 323 - Measurement of Formaldehyde Emissions from Natural Gas-Fired Stationary Sources - Acetyl Acetone Derivatization Method (FR Vol. 68, No. 9, Tuesday, Jan. 14, 2003 Pgs. 1925-1929).