

Environmental Protection Agency

Pt. 91, Subpt. D, App. A

(f) Verify that all NDIR analyzers meet the water rejection ratio and the CO<sub>2</sub> rejection ratio as specified in §91.325.

(g) Verify that the dynamometer test stand and power output instrumentation meet the specifications in Table 2 in appendix A to this subpart.

§91.329 Catalyst thermal stress test.

(a) *Oven characteristics.* The oven used for thermally stressing the test catalyst must be capable of maintaining a temperature of 500 ±5 °C and 1000 ±10 °C.

(b) *Evaluation gas composition.* (1) A synthetic exhaust gas mixture is used for evaluating the effect of thermal stress on catalyst conversion efficiency.

(2) The synthetic exhaust gas mixture must have the following composition:

Constituent	Volume percent	Parts per million
Carbon Monoxide <sup>1</sup>	1	.....
Oxygen	1.3	.....
Carbon Dioxide	9	.....
Water Vapor	10	.....
Sulfur Dioxide	.....	20
Oxides of Nitrogen	.....	280
Hydrogen	.....	3500
Hydrocarbon <sup>1,2</sup>	.....	4000
Nitrogen=Balance	.....	.....

<sup>1</sup> Alternatively, the carbon monoxide and hydrocarbon proportions of the mixture may be changed to 1.2% and 4650 ppm, respectively (using on of these alternative concentrations requires that the other be used simultaneously).  
<sup>2</sup> Propylene/propane ratio=2/1.

[61 FR 52102, Oct. 4, 1996; 62 FR 20066, Apr. 24, 1997]

APPENDIX A TO SUBPART D OF PART 91—TABLES

TABLE 1—SYMBOLS USED IN SUBPARTS D AND E

Symbol	Term	Unit
A <sub>YM</sub>	Final weighted emission test results	g/kW-hr
C <sub>3</sub> H <sub>8</sub>	Propane	
C <sub>B</sub>	Concentration of emission in background sample	ppm
C <sub>D</sub>	Concentration of emission in dilute sample	ppm
CO	Carbon monoxide	
CO <sub>2</sub>	Carbon dioxide	
conc	Concentration (ppm by volume)	ppm
D <sub>X</sub>	Density of a specific emission (XX)	g/m <sup>3</sup>
D <sub>XX</sub>	Volume concentration of a specific emission (XX) on a dry basis.	percent
DF	Dilution factor of dilute exhaust.	
D1	Water vapor mixture concentration	percent
f	Engine specific parameter considering atmospheric conditions	
G <sub>AIRD</sub>	Intake air mass flow rate on dry basis	kg/h
G <sub>FUEL</sub>	Fuel mass flow rate	kg/h
GP	Analyzer standard operating pressure	Pa
G <sub>s</sub>	Mass of carbon measured during a sampling period	g
H	Absolute humidity (water content related to dry air)	gr/kg
H <sub>2</sub>	Hydrogen	
i	Subscript denoting an individual mode	
IT	Indicated torque	N-m
K	Wet to dry conversion factor	
K <sub>H</sub>	Humidity correction factor	
K <sub>V</sub>	Calibration coefficient for critical flow venturi	
M <sub>X</sub>	Molecular weight of a specific molecule(XX)	g/mole
mass	Pollutant mass flow	g/h
M <sub>FUEL</sub>	Mass of fuel consumed during a sampling period	g
N	Pump revolutions during test period	revs
N <sub>2</sub>	Nitrogen	
NO	Nitric oxide	
NO <sub>2</sub>	Nitrogen dioxide	
NO <sub>X</sub>	Oxides of nitrogen	
O <sub>2</sub>	Oxygen	
O <sub>2</sub> I	Oxygen concentration of the burner air	percent
P	Absolute pressure	kPa
P <sub>AUX</sub>	Declared total power absorbed by auxiliaries fitted for the test	kW
P <sub>B</sub>	Total barometric pressure (average of the pre-test and post-test values).	kPa
P <sub>dew</sub>	Test ambient saturation vapor pressure at the dew point	kPa
P <sub>e</sub>	Absolute pump outlet pressure	kPa
P <sub>ED</sub>	Pressure drop between the inlet and throat of metering venturi	kPa
P <sub>i</sub>	P <sub>i</sub> =P <sub>M,i</sub> + P <sub>AUX,i</sub>	