



CHAPTER 14 -- DIESEL SMOKE

Control and Prohibition of Smoke From Diesel-Powered Motor Vehicles



NEW JERSEY AIR POLLUTION CONTROL CODE

New Jersey (State)
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The Air Pollution Control Code consists of a group of administrative regulations published as chapters. These regulations have the force and effect of law. By law, the authority to promulgate such regulations after public hearing is vested in the New Jersey State Department of Environmental Protection.

NOTE: The chapters of the New Jersey Air Pollution Control Code are:

1	Definitions	8	Sulfur Compounds from Industrial Processes
2	Open Burning	9	Permits
3	Municipal Regulations	10	Sulfur in Fuels (Oil)
4	Smoke	10-A	Sulfur in Coal
5	Solid Fuel	11	Incinerators
6	Prohibition of Air Pollution	12	Emergencies
7	Solid Particles	13	Air Quality Standards (SO ₂ & Particulates)

14 Diesel Smoke

Filed in Secretary of State's Office

on December 21, 1970

Effective Date: June 18, 1971

SECTION 1 -- DEFINITIONS

- 1.1 **PERSON:** Includes corporations, companies, associations, societies, firms, partnerships and joint stock companies as well as individuals, and shall also include all political subdivisions of this State or any agencies or instrumentalities thereof.
- 1.2 **MOTOR VEHICLE:** Includes all vehicles propelled otherwise than by muscular power, excepting such vehicles as run only upon rails or tracks.
- 1.3 **AUTOBUS:** Includes all motor vehicles used for the transportation of passengers for hire.
- 1.4 **DIESEL-POWERED MOTOR VEHICLE:** A self-propelled vehicle designed primarily for transporting persons or property on a public street or highway which is propelled by a compression ignition type of internal combustion engine; for purposes of this chapter passenger automobiles and motorcycles are excluded.
- 1.5 **DIESEL-POWERED ENGINE:** A mechanism for converting energy into mechanical force and motion by using a compression ignition type of internal combustion engine.
- 1.6 **SMOKE:** Small gasborne and airborne particles, exclusive of water vapor, arising from a process of combustion in sufficient number to be observable.
- 1.7 **OPACITY:** The property of a substance which renders it partially or wholly obstructive to the transmission of visible light expressed as the percentage to which the light is obstructed.
- 1.8 **EXHAUST EMISSIONS:** Substances emitted into the atmosphere from any opening downstream from the exhaust ports of a motor vehicle engine.
- 1.9 **SMOKEMETER:** A device constructed in such manner as to measure smoke opacity by light obstruction between a light source and photoelectric cell which will indicate the percent opacity of smoke at a point approximately six (6) inches from the engine exhaust

outlet. The device shall be of design meeting "Specification for Diesel-Powered Vehicle Smokemeter" on file with the State Commissioner of Environmental Protection and approved for use in accordance with manufacturers' recommended procedures for calibration, mounting and maintenance.

- 1.10 **OPERATING MODE:** A procedure for operating a diesel-powered motor vehicle or a diesel-powered engine during measurement of smoke opacity in the exhaust emissions.
- 1.11 **CHASSIS DYNAMOMETER:** A device constructed in such a manner as to simulate highway driving conditions on a stationary motor vehicle.
- 1.12 **RPM - Revolutions per minute**
- 1.13 **MPH - Miles per hour**

SECTION 2 -- PUBLIC HIGHWAY STANDARD

- 2.1 No person shall operate any diesel-powered motor vehicle or permit any diesel-powered motor vehicle which he owns to be operated upon the public highways of the State if the vehicle, when in motion, emits visible smoke in the exhaust emissions within the proximity of the exhaust outlet, for a period of more than five (5) seconds.

SECTION 3 -- INSPECTION STANDARD

- 3.1 Any motor vehicle propelled by a diesel-powered engine which is subject to inspection at the premises or places of business of the owner or lessee by the Division of Motor Vehicles as a condition of compliance with said inspection, shall not emit smoke in the exhaust emissions in excess of the smoke opacity standards set forth in Table 1.
- 3.2 Any autobus propelled by a diesel-powered engine which is subject to inspection at the premises or places of business of the owner or lessee by the Public Utilities Commission as a condition of compliance with said inspection shall not emit smoke in the exhaust emissions in excess of the smoke opacity standard set forth in Table 2.

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TABLE 1

INSPECTION STANDARDS

VEHICLES SUBJECT TO INSPECTION BY THE DIVISION OF MOTOR VEHICLES

(Reference P. L. Title 39:8-10)

<u>Type of Inspection</u>	<u>Operating Mode*</u>	<u>Smoke Opacity Standard</u>
Self inspection authorized by Division of Motor Vehicles at the premises or places of business of the owner or lessee	(1) Vehicle driven on chassis dynamometer with simulated load by power absorption -alternate-	20%
	(2) Vehicle driven in low gear with simulated load by braking action	20%

***PROCEDURES:**

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| <p>(1) VEHICLE DRIVEN ON CHASSIS DYNAMOMETER WITH SIMULATED LOAD BY POWER ABSORPTION - with smokemeter firmly positioned on the exhaust outlet and vehicle positioned on the chassis dynamometer proceed with the following steps:</p> <p>STEP 1 With vehicle on a chassis dynamometer under no power absorption, select a gear ratio which will produce a maximum vehicle speed of 45-60 MPH at governed engine RPM.</p> <p>STEP 2 With engine running at governed engine RPM, apply power absorption load to the dynamometer until such loading reduces the engine RPM to 80 per cent of the governed speed, the peak smoke opacity measured over a period of 5 to 10 seconds with the engine under such loading shall be the smoke opacity.</p> | <p>(2) VEHICLE DRIVEN IN LOW GEAR WITH SIMULATED LOAD BY BRAKING ACTION - with smokemeter firmly positioned on the exhaust outlet, proceed with the following steps:</p> <p>STEP 1 Select a gear ratio which will produce a maximum speed of 10-15 MPH, at governed engine RPM, drive vehicle at 10-15 MPH at governed engine RPM.</p> <p>STEP 2 Load the engine by applying brakes until engine RPM is lugged down to 80 per cent of the governed engine RPM, the peak smoke opacity measured over a period of 5-10 seconds with the engine under such brake loading shall be the smoke opacity.</p> |
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NOTE:

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| <p>(a) All measurements are to be made after engines have been run a sufficient period of time to be at normal operating temperature.</p> | <p>(b) Separate measurements shall be made on each exhaust outlet on vehicles equipped with dual exhaust outlets.</p> |
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TABLE 2

INSPECTION STANDARDS

VEHICLES SUBJECT TO INSPECTION BY THE PUBLIC UTILITIES COMMISSION

(Reference P. L. Title 48: 402.1 and 2.1A, Title 48: 4-18)

<u>Type of Inspection</u>	<u>Operating Mode*</u>	<u>Smoke Opacity Standard</u>
Inspection of Public Utilities Commission at the premises or places of business of the owner or lessee	Autobus driven with rapid acceleration	40%

***PROCEDURE**

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| <p>Step 1. With smokemeter firmly positioned on exhaust outlet and transmission engaged, drive autobus by accelerating as rapidly as possible to approximately 20 MPH.</p> | <p>Step 2. Release accelerator pedal and brake to full stop.</p> <p>Step 3. The peak smoke opacity measured during the acceleration to 20 MPH shall be the smoke opacity.</p> |
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NOTE:

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| <p>(a) All measurements are to be made after engines have been run a sufficient period of time to be at normal operating temperature.</p> <p>(b) Separate measurements shall be made on</p> | <p>each exhaust outlet on vehicles equipped with dual and separated exhaust outlets.</p> <p>(c) A single, combined measurement shall be made on the exhaust outlets on vehicles equipped with dual, adjacent exhaust outlets.</p> |
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