

## Metered Smoke Test (Diesel)

The metered smoke test has been conducted in EU countries for many years. During this test, a calibrated smoke meter is used to assess the density of the smoke from compression ignition (**diesel**) engined vehicles.

The engine will be accelerated up to governed speed and the smoke density measured. Engines that emit very little smoke and achieve a meter reading of  $1.5\text{m}^{-1}$  or less will pass the test after the first acceleration. However, if the test is not passed on the first acceleration a further two accelerations will be carried out.

The average of the three acceleration readings will be calculated and if the reading is at or below  $2.5\text{m}^{-1}$  for **non-turbocharged** engines or  $3.0\text{m}^{-1}$  for **turbocharged** engines, the vehicle will pass this element of the test.

However, if the average is higher, a further acceleration will be carried out, and the average of the last three readings will be calculated. This will continue up to a maximum of six accelerations. If the average of the fourth, fifth and sixth accelerations is higher than the appropriate level, the vehicle will not pass the test.

In addition, vehicles may be refused a certificate if the exhaust emits excessive smoke or vapour, to an extent likely to obscure vision.

A metered smoke test will not be carried out if:

- The exhaust tail pipe is damaged or an accessory is fitted which prevents insertion of the smoke meter probe.
- The exhaust system is extensively fractured or holed.

- There are obvious signs of an engine defect such as an unusual noise or emission of excessive smoke.
- There is an insufficient or excessive amount of oil in the engine or, low engine oil pressure, which could cause engine damage if the engine is accelerated.
- There are obvious signs that the governors have been tampered with or are not operating.
- The vehicle owner / presenter cannot confirm that the vehicle has been properly maintained, the camshaft drive belt has been replaced at the recommended intervals and the engine is in a suitable condition for testing.

In the above circumstances where a metered smoke test is not carried out, the vehicle will fail the test.

**Note:** It is important that vehicles are properly maintained prior to testing (including changing of the camshaft drive belts in accordance with the manufacturer's recommendation) and presented for test at normal working temperature. This may require the engine to be kept running prior to the start of the test.

## Emission Test (Petrol)

The emission test applies to all **petrol** cars, taxis, minibuses and ambulances with up to 12 passenger seats, and other vehicles up to and including 3,500kg design gross weight (DGW), which are spark ignition engined, with four or more wheels.

Emission testing has been part of the annual inspection for many years, with the measurement of carbon monoxide and hydrocarbons taken at the engine's normal idle. The revised test standard being introduced applies to most cars first used on or after 1st August 1992 and other vehicles first used on or after 1st August 1994.

These vehicles are fitted with an advanced emission control system such as a catalytic converter. They will have their engine exhaust emissions checked both at engine normal idle and at a fast idle speed. The new test will apply the manufacturer's specific emission limits for that vehicle in most cases.

An example of a manufacturer's specific emission limits for a vehicle may be:

Fast Idle:

- Hydrocarbons (HC) - 200ppm.
- Carbon monoxide (CO) - 0.2%.
- Lambda ( $\lambda$  should equal 1 for the optimum air/fuel ratio setting) - 0.97 to 1.03  $\lambda$ .

Normal idle:

- Carbon monoxide (CO) - 0.3%.

The emission tests for older vehicles will be unchanged, these will continue to be tested at normal engine idle speed with the following permitted limits:

- Vehicles first used on or after 1st August 1986 and before 1st August 1992:
  - Carbon monoxide (CO) - 3.5% at idle.
  - Hydrocarbons (HC) - 1200ppm.

- Vehicles first used on or after 1st August 1975 and before 1st August 1986:
  - Carbon monoxide (CO) - 4.5% at idle.
  - Hydrocarbons (HC) - 1200ppm.
- Vehicles first used before 1st August 1975 are exempt from a metered emission test.

An emission test will not be carried out if the following conditions exist:

- The engine idles at a speed clearly above its normal idling speed.
- The exhaust tailpipe is damaged or an accessory is fitted which prevents insertion of the analyser probe.
- The exhaust system is fractured or holed.

In the above circumstances the vehicle will be refused a certificate.

In addition vehicles may be refused a test certificate if:

- The engine emits dense blue or clearly visible black smoke for a continuous period of five seconds at idle.
- The engine emits dense blue or clearly visible black smoke during acceleration, which would obscure the view of other road users.

**Note:** It is also important for the emission test that vehicles are properly maintained and presented for test at normal working temperature. This may require the engine to be kept running prior to the test starting.

The information in this document may change. For more advice contact your local Test Centre.

Armagh	028 3752 2699
Ballymena	028 2565 6801
Belfast	028 9068 1831
Coleraine	028 7034 3819
Cookstown	028 8676 4809
Craigavon	028 3833 6188
Downpatrick	028 4461 4565
Enniskillen	028 6632 2871
Larne	028 2827 8808
Lisburn	028 9266 3151
Londonderry	028 7134 3674
Mallusk	028 9084 2111
Newry	028 3026 2853
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Omagh	028 8224 2540

Customer Help line 0845 601 4094  
 MOT Booking Service 0845 247 2471  
 24 hour Fees information line 0845 758 1416

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## New Emission Tests in Annual Inspection

From 1st March 2006, diesel powered vehicles will be subject to a new metered smoke test, while most petrol powered vehicles first used on or after 1st August 1992 will have a more stringent emission test carried out.

