

الهيئة السعودية للمواصفات والمقاييس والجودة

Saudi Standards, Metrology and Quality Org. (SASO)



SASO / DS / 33915

مركبات الطرق - الحدود المسموح بها لانبعاثات الملوثات الغازية والجسيمية إلى البيئة
لمركبات الخدمة الخفيفة

Road vehicles — Allowable limits of gaseous and particulate pollutants emitted into the atmosphere from light-duty vehicles

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ICS: 13.040.50

SASO XXXX:2026

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**Road vehicles — Allowable limits of gaseous and particulate
pollutants emitted into the atmosphere from light-duty vehicles**

Date of SASO Board of Directors' Approval:

Date of Publication in the Official Gazette:

مقدمة

قامت الهيئة السعودية للمواصفات والمقاييس والجودة بإعداد المواصفة القياسية السعودية رقم SASO XXXX:2026 " مركبات الطرق - الحدود المسموح بها لانبعاثات الملوثات الغازية والجسيمية إلى البيئة لمركبات الخدمة الخفيفة " بعد استعراض المواصفات القياسية العربية والاجنبية والدولية والمؤلفات المرجعية.

Foreword

Saudi Standards, Metrology and Quality Organization (SASO) has updated the Saudi Standard No. SASO XXXX:2026 " Road vehicles — Allowable limits of gaseous and particulate pollutants emitted into the atmosphere from light-duty vehicles" based on relevant ADMO, International and National foreign Standards and references.

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Abbreviations

M1	Passenger Cars – M1
M2	Passenger Cars – M2
N1	Light Commercial Vehicles – N1
N2	Light Commercial Vehicles – N2
GVW	Gross Vehicle Weight
RM	Reference Mass
Class I, II, III	Emission Class
OBD	On-Board Diagnostic
GDI	Gasoline Direct Injection
CO	Carbon Monoxide
HC	Hydrocarbons
THC	Total Hydrocarbons
NMHC	Non-methane Hydrocarbons
NOx	Oxides of Nitrogen
PM	Particulate Matter
Euro 5	Euro 5 Emission Standard
UNECE	United Nations Economic Commission for Europe
DF	Deterioration Factor
HEV	Hybrid Electric Vehicle

1. Scope

This standard specifies the technical requirements, methods for measuring and testing exhaust emissions, and the maximum permissible limits for gaseous and particulate pollutants emitted into the environment from conventional and hybrid electric light-duty vehicle engines equipped with internal combustion engines, either compression-ignition (C.I.) engines operating on diesel fuel, or spark-ignition engines (positive-ignition, P.I.) operating on gasoline fuel.

This standard applies to vehicles of the passenger transport categories (M1) and (M2), and goods transport vehicles (N1) and (N2) with a reference mass not exceeding 2,610 kg, in accordance with the technical provisions set out in **UNECE Regulation No. 83 Revision 5**, in accordance with the technical requirements of the **Euro 5** level.

2. Complementary References

- 2.1 **UNECE Regulation No. 83 Revision 5**: "Uniform provisions concerning the approval of vehicles with regard to the emission of pollutants according to engine fuel requirements".
- 2.2 **SASO 844** "Clean Diesel Fuel".
- 2.3 **SASO 1951** "Clean Gasoline Fuel".
- 2.4 **ECE/TRANS/WP.29/78/Revision 6** "Consolidated Resolution on the Construction of Vehicles".

3. Definitions

- 3.1 **Reference mass**: means the unladen mass of the vehicle increased by a uniform figure of 100 kg for test according to Annexes 4a and 8 of complementary reference 2.1.
- 3.2 **Unladen Mass**: means the mass of the vehicle in running order without the uniform mass of the driver of 75 kg, passengers or load, but with the fuel tank 90 per cent full and the usual set of tools and spare wheel on board, where applicable.
- 3.3 **Running order mass**: means the mass described in paragraph 2.6. of Annex 1 of complementary reference 2.1 and for vehicles designed and constructed for the carriage of more than 9 persons (in addition to the driver), the mass of a crew member (75 kg), if there is a crew seat amongst the nine or more seats.

- 3.4 **Maximum mass:** means the technically permissible maximum mass declared by the vehicle manufacturer (this mass may be greater than the maximum mass authorised by the national administration).
- 3.5 **Gaseous pollutants:** means the exhaust gas emissions of carbon monoxide, oxides of nitrogen expressed in nitrogen dioxide (NO₂) equivalent and hydrocarbons expressed according to the type of fuel used in accordance with paragraph 2.4 of complementary reference 2.1.
- 3.6 **Particulate pollutants:** means components of the exhaust gas which are removed from the diluted exhaust gas at a maximum temperature of 325 K (52 °C) by means of the filters described in Appendix 4 to Annex 4a of complementary reference 2.1.
- 3.7 **Particulate numbers:** means the total number of particulates of a diameter greater than 23 nm present in the diluted exhaust gas after it has been conditioned to remove volatile material, as described in Appendix 5 to Annex 4a of complementary reference 2.1.
- 3.8 **Exhaust emissions:** means:
- (a) For Positive ignition (P.I.) engines, emissions of gaseous and particulate pollutants;
 - (b) For Compression-Ignition (C.I.) engines, emissions of gaseous pollutants, particulate pollutants and particulate numbers.
- 3.9 **Evaporative emissions:** means the hydrocarbon vapours lost from the fuel system of a motor vehicle other than those from exhaust emissions.
- 3.10 **Tank breathing losses:** are hydrocarbon emissions caused by temperature changes in the fuel tank (assuming a ratio of C₁H_{2.33}).
- 3.11 **Hot soak losses:** are hydrocarbon emissions arising from the fuel system of a stationary vehicle after a period of driving (assuming a ratio of C₁H_{2.20}).
- 3.12 **Engine crankcase:** means the spaces in or external to an engine which are connected to the oil sump by internal or external ducts through which gases and vapour can escape.
- 3.13 **Pollution control devices:** means those components of a vehicle that control and/or limit exhaust and evaporative emissions.

- 3.14 **On-Board Diagnostic - OBD:** means an on-board diagnostic system for emission control, which has the capability of identifying the likely area of malfunction by means of fault codes stored in computer memory.
- 3.15 **Defeat device:** means any element of design which senses temperature, vehicle speed, engine rotational speed, transmission gear, manifold vacuum or any other parameter for the purpose of activating, modulating, delaying or deactivating the operation of any part of the emission control system, that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal vehicle operation and use.
- Such an element of design may not be considered a defeat device if:
- 3.15.1. The need for the device is justified in terms of protecting the engine against damage or accident and for safe operation of the vehicle; or
- 3.15.2. The device does not function beyond the requirements of engine starting; or
- 3.15.3. Conditions are substantially included in the Type I or Type VI test procedures.
- 3.16 **Direct injection engine:** means an engine which can operate in a mode where the fuel is injected into the intake air after the air has been drawn through the inlet valves.
- 3.17 **Net power:** means the power obtained on a test bench at the end of the crankshaft or its equivalent at the corresponding engine or motor speed with the auxiliaries tested in accordance with Regulation No. 85 and determined under reference atmospheric conditions.
- 3.18 **Maximum net power:** means the maximum value of the net power measured at full engine load.
- 3.19 **Cold start:** means an engine coolant temperature (or equivalent temperature) at engine start less than or equal to 35 °C and less than or equal to 7 K higher than ambient temperature (if available) at engine start.
- 3.20 **Reference Fuel:** The test fuel used in all emission tests specified in this standard, in accordance with the characteristics specified in Annex 10 of complementary reference 2.1.

- 3.21 **Gross Vehicle Weight – GVW:** means the technically permitted gross vehicle weight (GVW) of a vehicle, as specified in the manufacturer's documentation or local registration. GVW is not used for emissions classification or setting pollutant limits under this specification.
- 3.22 **Conventional vehicles:** means a vehicle equipped only with an internal combustion engine, which operates either by compression ignition or spark ignition, for the purpose of propelling the vehicle.
- 3.23 **Hybrid Vehicle – HV:** means a vehicle with at least two different energy converters and two different energy storage systems (on vehicle) for the purpose of vehicle propulsion.
- 3.24 **Hybrid Electric Vehicle – HEV:** means a vehicle, including vehicles which draw energy from a consumable fuel only for the purpose of recharging the electrical energy/power storage device that for the purpose of mechanical propulsion draws energy from both of the following on-vehicle sources of stored energy/power:
- (a) A consumable fuel;
 - (b) A battery, capacitor, flywheel/generator or other electrical energy/power storage device.
- 3.25 Any other definitions not specified herein shall be directly referred to section (2) of complementary reference 2.1.

4. Classification of Vehicles and Categories

4.1 Classification of vehicles by category

Vehicles covered by this Standard shall be classified in accordance with the vehicle categories set out in ECE/TRANS/WP.29/78/Revision 6 "Consolidated Resolution on the Construction of Vehicles", considering the scope of application specified in Clause (1), as follows:

- 4.1.1 Category M1: Vehicles used for the carriage of passengers and comprising no more than eight seats in addition to the driver's seat.
- 4.1.2 Category M2: Vehicles used for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum mass not exceeding 5 tonnes.

4.1.3 Category N1: Vehicles used for the carriage of goods and having a maximum mass not exceeding 3.5 tonnes.

4.1.4 Category N2: Vehicles used for the carriage of goods and having a maximum mass exceeding 3.5 tonnes but not exceeding 12 tonnes.

4.2 Classification of light-duty vehicles by reference mass for emissions limit determinations

The classification of light-duty vehicles covered by this standard is based on the reference mass, as shown in complementary reference 2.1, and is used to determine the emission limits, as described in Table 1:

Table 1: Classification of light-duty vehicles by reference mass for emission limits.

Vehicle Category	Reference Mass (RM)*	Classification
M	All	CLASS I
N1	$RM \leq 1,305$	CLASS I
	$1,305 < RM \leq 1,760$	CLASS II
	$1,760 < RM$	CLASS III
N2	All	CLASS III

* The vehicle's reference mass (RM) is obtained from manufacturer's data.

5. General Requirements and Provisions

5.1 The components liable to affect the emission of pollutants shall be so designed, constructed and assembled as to enable the vehicle, in normal use, despite the vibration to which they may be subjected, to comply with the provisions of this standard.

5.2 The technical measures taken by the manufacturer shall be such as to ensure that in conformity with the provisions of this standard, exhaust gas and evaporative emissions are effectively limited throughout the normal life of the vehicle and under normal conditions of use. This will include the security of those hoses and their joints and connections, used within the emission control systems, which shall be so constructed as to conform with the original design intent. For exhaust emissions, these provisions are deemed to be met if the provisions of paragraph 6.2.1. of this standard and paragraph 8.2. of complementary reference 2.1 are complied with. For evaporative emissions, these conditions are deemed to be met if the provisions of paragraph 6.2.4. of this standard and paragraph 8.4. of complementary reference 2.1 are complied with.

- 5.3 The use of a defeat device is prohibited.
- 5.4 Inlet orifices of petrol tanks
 - 5.4.1 Subject to paragraph 5.4.2. of this standard, the inlet orifice of the petrol tank shall be so designed as to prevent the tank from being filled from a fuel pump delivery nozzle which has an external diameter of 23.6 mm or greater.
 - 5.4.2 Paragraph 5.4.1. of this standard shall not apply to a vehicle in respect of which both of the following conditions are satisfied, i.e.:
 - 5.4.2.1 The vehicle is so designed and constructed that no device designed to control the emission of gaseous pollutants shall be adversely affected by leaded petrol; and
 - 5.4.2.2 The vehicle is conspicuously, legibly and indelibly marked with the symbol for unleaded petrol, specified in ISO 2575:1982, in a position immediately visible to a person filling the petrol tank. Additional markings are permitted.
- 5.5 Provision shall be made to prevent excess evaporative emissions and fuel spillage caused by a missing fuel filler cap. This may be achieved by using one of the following
 - 5.5.1 An automatically opening and closing, non-removable fuel filler cap;
 - 5.5.2 Design features which avoid excess evaporative emissions in the case of a missing fuel filler cap; or
 - 5.5.3 Any other provision which has the same effect. Examples may include, but are not limited to, a tethered filler cap, a chained filler cap or one utilising the same locking key for the filler cap as for the vehicle's ignition. In this case, the key shall be removable from the filler cap only in the locked condition.
- 5.6 Provisions for electronic system security
 - 5.6.1 Any vehicle with an emission control computer shall include features to prevent modification, except as authorised by the manufacturer. The manufacturer shall authorise modifications if these modifications are necessary for the diagnosis, servicing, inspection, retrofitting or repair of the vehicle. Any reprogrammable computer codes or operating parameter shall be resistant to tampering and afford a level of protection at least as good as the provisions in ISO DIS 15031-7, dated 15 March 2001 (SAE J2186 dated October 1996). Any removable calibration memory chips shall be potted, encased

in a sealed container, or protected by electronic algorithms and shall not be changeable without the use of specialised tools and procedures. Only features directly associated with emissions calibration or prevention of vehicle theft may be so protected.

5.6.2 Computer-coded engine operating parameters shall not be changeable without the use of specialised tools and procedures (e.g. soldered or potted computer components or sealed (or soldered) computer enclosures).

5.6.3 In the case of mechanical fuel-injection pumps fitted to compression-ignition engines, manufacturers shall take adequate steps to protect the maximum fuel delivery setting from tampering while a vehicle is in service.

6. Measurements and tests

6.1 General test requirements

6.1.1 Positive ignition engine-powered vehicles and hybrid electric vehicles equipped with a positive ignition engine shall be subject to the following tests:

6.1.1.1 Type I (verifying the average exhaust emissions after a cold start);

6.1.1.2 Type II (carbon monoxide emission at idling speed);

6.1.1.3 Type III (emission of crankcase gases);

6.1.1.4 Type IV (evaporation emissions);

6.1.1.5 Type V (durability of anti-pollution devices);

6.1.1.6 Type VI (verifying the average low ambient temperature carbon monoxide and hydrocarbon exhaust emissions after a cold start;

6.1.1.7 OBD-test;

6.1.1.8 Engine power test.

6.1.2 Compression ignition engine-powered vehicles and hybrid electric vehicles equipped with a compression ignition engine shall be subject to the following tests:

6.1.2.1 Type I (verifying the average exhaust emissions after a cold start);

6.1.2.2 Type V (durability of anti-pollution control devices);

6.1.2.3 OBD test.

6.2 Test description

6.2.1 Type I test (Verifying exhaust emissions after a cold start).

6.2.1.1 This test shall be carried out on all vehicles referred to in the scope of this standard.

6.2.1.2 The vehicle is placed on a chassis dynamometer equipped with a means of load and inertia simulation.

6.2.1.3 A test lasting a total of 19 minutes and 40 seconds, made up of two parts, One and Two, is performed without interruption. An unsampled period of not more than 20 seconds may, with the agreement of the manufacturer, be introduced between the end of Part One and the beginning of Part Two in order to facilitate adjustment of the test equipment.

6.2.1.4 Part One of the test is made up of four elementary urban cycles. Each elementary urban cycle comprises fifteen phases (idling, acceleration, steady speed, deceleration, etc.).

6.2.1.5 Part Two of the test is made up of one extra-urban cycle. The extra-urban cycle comprises 13 phases (idling, acceleration, steady speed, deceleration, etc.).

6.2.1.6 During the test the exhaust gases are diluted and a proportional sample collected in one or more bags. The exhaust gases of the vehicle tested are diluted, sampled and analysed, following the procedure described below, and the total volume of the diluted exhaust is measured. Not only are the carbon monoxide, hydrocarbon and nitrogen oxide emissions recorded, but also the particulate pollutant emissions from vehicles equipped with compression-ignition engines.

6.2.1.7 The test is carried out using the procedure of Type I test as described in Annex 4a of complementary reference 2.1. The method used to collect and analyse the gases is prescribed in Appendix 2 and Appendix 3 to Annex 4a of complementary reference 2.1, and the method to sample and analyse the particulates shall be as prescribed in Appendix 4 and Appendix 5 to Annex 4a of complementary reference 2.1. For hybrid electric vehicles, the Type I test shall be carried out according to the procedures set out in Annex 14 of complementary reference 2.1.

6.2.1.8 Subject to the requirements of paragraph 6.2.1.10, the test shall be repeated three times.

The results are multiplied by the appropriate deterioration factors obtained from Table 5 of this standard and, in the case of periodically regenerating systems, shall also be multiplied by the factors K_i obtained from Annex 13 of complementary reference 2.1. The resulting masses of gaseous emissions and the mass of and number of particulates obtained shall be less than the limits shown in Table 2 and Table 3 of this standard.

6.2.1.9 Notwithstanding the requirements of paragraph 6.2.1.8., for each pollutant or combination of pollutants, one of the three resulting masses obtained may exceed, by not more than 10 per cent, the limit prescribed, provided the arithmetical mean of the three results is below the prescribed limit. Where the prescribed limits are exceeded for more than one pollutant, it is immaterial whether this occurs in the same test or in different tests.

6.2.1.10 The number of tests prescribed in paragraph 6.2.1.8. is reduced in the conditions hereinafter defined, where V_1 is the result of the first test and V_2 the result of the second test for each pollutant or for the combined emission of two pollutants subject to limitation.

6.2.1.11 Only one test is performed if the result obtained for each pollutant or for the combined emission of two pollutants subject to limitation, is less than or equal to:

$$0.70 \text{ L (i.e. } V_1 \leq 0.70 \text{ L)}$$

6.2.1.12 If the requirement of paragraph 6.2.1.11. is not satisfied, only two tests are performed if, for each pollutant or for the combined emission of two pollutants subject to limitation, the following requirements are met:

$$V_1 \leq 0.85 \text{ L and } V_1 + V_2 \leq 1.70 \text{ L and } V_2 \leq L$$

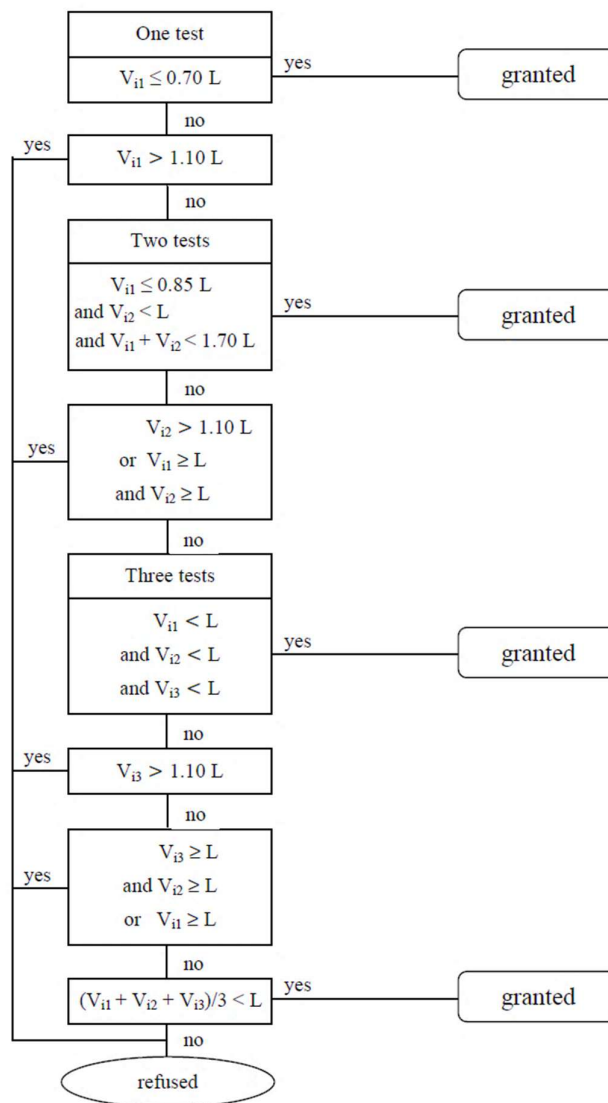


Figure 1: Flow chart for Type I type approval, adapted from complementary reference 2.1.

6.2.2 Type II test (Carbon monoxide emission test at idling speed)

This test is carried out on all vehicles powered by positive ignition engines, as follows:

6.2.2.1 For the Type II test set out in Annex 5 of complementary reference 2.1, at normal engine idling speed, the maximum permissible carbon monoxide content in the exhaust gases shall be that stated by the vehicle manufacturer. However, the maximum carbon monoxide content shall not exceed 0.3 per cent vol.

6.2.2.2 At high idle speed, the carbon monoxide content by volume of the exhaust gases shall not exceed 0.2 per cent, with the engine speed being at least 2,000 min⁻¹ and Lambda being 1 ± 0.03 or in accordance with the specifications of the manufacturer.

6.2.3 Type III test (Verifying emissions of crankcase gases)

6.2.3.1 This test shall be carried out on all vehicles referred to in the scope of this standard except those having compression-ignition engines.

6.2.3.2 When tested in accordance with Annex 6 of complementary reference 2.1, the engine's crankcase ventilation system shall not permit the emission of any of the crankcase gases into the atmosphere.

6.2.4 Type IV test (Determination of evaporative emissions from vehicles with positive ignition engines)

6.2.4.1 This test shall be carried out on all vehicles referred to in the scope of this standard except those having compression-ignition engines.

6.2.4.2 When tested in accordance with Annex 7 of complementary reference 2.1, evaporative emissions shall be less than 2 g/test.

6.2.5 Type VI test (Verifying the average exhaust emissions of carbon monoxide and hydrocarbons after a cold start at low ambient temperature)

6.2.5.1 This test shall be carried out on all vehicles referred to the scope of this standard except those having compression-ignition engines.

6.2.5.2 The vehicle is placed on a chassis dynamometer equipped with a means of load and inertia simulation.

6.2.5.3 The test consists of the four elementary urban driving cycles of Part One of the Type I test. The Part One test is described in paragraph 6.1.1. of Annex 4a of complementary reference 2.1 and illustrated in Figure A4a/1 of the same annex. The low ambient temperature test lasting a total of 780 seconds shall be carried out without interruption and start at engine cranking.

6.2.5.4 The low ambient temperature test shall be carried out at an ambient test temperature of 266 K (-7 °C). Before the test is carried out, the test vehicles shall be conditioned in a

uniform manner to ensure that the test results may be reproducible. The conditioning and other test procedures are carried out as described in Annex 8 of complementary reference 2.1.

6.2.5.5 During the test, the exhaust gases are diluted and a proportional sample collected. The exhaust gases of the vehicle tested are diluted, sampled and analysed, following the procedure described in Annex 8 of complementary reference 2.1, and the total volume of the diluted exhaust is measured. The diluted exhaust gases are analysed for carbon monoxide and total hydrocarbons.

6.2.5.6 Subject to the requirements in paragraphs 6.2.5.7. and 6.2.5.8. the test shall be performed three times. The resulting mass of carbon monoxide and hydrocarbon emission shall be less than the limits shown in Table 4.

6.2.5.7 Notwithstanding the requirements of paragraph 6.2.5.6., for each pollutant, not more than one of the three results obtained may exceed the limit prescribed by not more than 10 per cent, provided the arithmetical mean value of the three results is below the prescribed limit. Where the prescribed limits are exceeded for more than one pollutant, it is immaterial whether this occurs in the same test or in different tests.

6.2.5.8 The number of tests prescribed in paragraph 6.2.5.6. may, at the request of the manufacturer, be increased to 10 if the arithmetical mean of the first three results is lower than 110 per cent of the limit. In this case, the requirement after testing is only that the arithmetical mean of all 10 results shall be less than the limit value.

6.2.5.9 The number of tests prescribed in paragraph 6.2.5.6. may be reduced under the following conditions:

6.2.5.9.1 Only one test is performed if the result obtained for each pollutant of the first test is less than or equal to 0.70 L.

6.2.5.9.2 If the requirement of paragraph 6.2.5.9.1. is not satisfied, only two tests are performed if for each pollutant the result of the first test is less than or equal to 0.85 L and the sum of the first two results is less than or equal to 1.70 L and the result of the second test is less than or equal to L.

$$(V1 \leq 0.85 \text{ L and } V1 + V2 \leq 1.70 \text{ L and } V2 \leq L)$$

6.2.6 Type V test (Description of the endurance test for verifying the durability of pollution control devices)

6.2.6.1 This test shall be carried out on all vehicles referred to in the scope of this standard to which the test specified in paragraph 6.2.1. applies. The test represents an ageing test of 160,000 km driven in accordance with the programme described in Annex 9 of complementary reference 2.1 on a test track, on the road or on a chassis dynamometer.

6.2.6.2 Notwithstanding the requirement of paragraph 6.2.6.1., a manufacturer may choose to have the deterioration factors from Table 5 used as an alternative to testing to paragraph 6.2.6.1.

6.2.6.3 In the absence of assigned deterioration factors for compression ignition vehicles, manufacturers shall use the whole vehicle or bench ageing durability test procedures to establish deterioration factors.

6.2.6.4 Deterioration factors shall be determined either using the procedure specified in paragraph 6.2.6.1 or using the values given in Table 5, and these factors shall be used to verify compliance with the emission requirements.

6.2.7 On-board diagnostics OBD – Test

This test shall be carried out on all vehicles referred to in the scope of this standard, and the test procedure described in paragraph 3. of Annex 11 of complementary reference 2.1 shall be followed.

7. Maximum allowable limits for pollutants

7.1 Maximum allowable pollutant limits for vehicles equipped with positive ignition engines

Pollutant emissions from light-duty vehicles covered by this standard shall not exceed the maximum limits shown in Table 2 when conducting the Type I test in accordance with the provisions of paragraph 6.2.1 of this standard.

Table 2: Maximum exhaust emission limits for conventional and hybrid electric vehicles equipped with spark ignition engines.

Vehicle's category and classification		Maximum limit (mg/km)					
		CO	THC	NMHC	NO _x	PM*	PN*
M	CLASS I	1000	100	68	60	4.5	6.0x10 ¹¹
N1	CLASS I						
	CLASS II	1810	130	90	75	4.5	6.0x10 ¹¹
	CLASS III	2270	160	108	82	4.5	6.0x10 ¹¹
N2	---	2270	160	108	82	4.5	6.0x10 ¹¹
*Particulate mass and number limits shall apply only to vehicles with gasoline direct injection (GDI) engines.							

7.2 Maximum allowable pollutant limits for vehicles equipped with compression ignition engines

Pollutant emissions from light-duty vehicles covered by this standard shall not exceed the maximum limits shown in Table 3 when conducting the Type I test in accordance with the provisions of paragraph 6.2.1 of this standard.

Table 3: Maximum exhaust emission limits for conventional and hybrid electric vehicles equipped with compression ignition engines.

Vehicle's category and classification		Maximum limit (mg/km)				
		CO	NO _x	THC+NO _x	PM	PN
M	CLASS I	500	80	170	4.5	6.0x10 ¹¹
N1	CLASS I					
	CLASS II	630	105	195	4.5	6.0x10 ¹¹
	CLASS III	740	125	215	4.5	6.0x10 ¹¹
N2	---	740	125	215	4.5	6.0x10 ¹¹

7.3 Maximum allowable pollutant limits at low ambient temperature (°-7 C)

Carbon monoxide and hydrocarbon emissions shall not exceed the maximum limits shown in Table 4 when conducting the Type VI test in accordance with the provisions of paragraph 6.2.5 of this standard.

Table 4: Maximum allowable pollutant limits at low ambient temperature (°-7 C).

Vehicle's category and classification		Mass of carbon monoxide (CO) (g/km)	Mass of hydrocarbons (HC) (g/km)
M	CLASS I	15	1.8
	CLASS I		
N1	CLASS II	24	2.7
	CLASS III	30	3.2
N2	---	30	3.2

7.4 Deterioration factors

The deterioration factors shown in Table 5 shall be used to verify compliance with the emission requirements when applying the Type V test in accordance with the provisions of paragraph 6.2.6 of this standard.

Table 5: Deterioration factors.

Engine category	CO	THC	NMHC	NO _x	HC+NO _x	PM	PN
Positive ignition engine	1.5	1.3	1.3	1.6	-	1.0	1.0
Compression ignition engine	-	-	-	-	-	-	-

8. References

- (UNECE Regulation No. 83 – Revision 5): Uniform provisions concerning the approval of vehicles with regard to the emission of pollutants according to engine fuel requirements.