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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 18352.5-2013

**Limits and measurement methods for emissions from light-duty
vehicles (CHINA 5) (Replaced by GB 18352.6-2016, Valid
through July 2025)**

轻型汽车污染物排放限值及测量方法

(English Translation)

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1 Scope of application

This Standard specifies the limits and measurement methods for exhaust emissions at normal and low ambient temperature, exhaust emissions at two-speed idle condition, crankcase emissions, and evaporative emissions, and technical requirements and measurement methods for the durability of pollution control devices and onboard diagnostic (OBD) systems of light-duty vehicles equipped with positive-ignition engines.

This Standard specifies the limits and measurement methods for exhaust emissions at normal ambient temperature and free acceleration smoke, and technical requirements and measurement methods for the durability of pollution control devices and OBD systems of light-duty vehicles equipped with compression-ignition engines.

This Standard specifies the requirements for type-approval of light-duty vehicles, check and

verification methods of conformity of production and in-service conformity.

This Standard also specifies the special requirements for light-duty vehicles fueled by LPG or NG.

This Standard also specifies the type-approval procedure for replacement pollution control devices as separate technical units intended to be fitted on light-duty vehicles with respect to pollutant emissions.

This Standard also stipulates the technical requirements for vehicles that use a reagent for the exhaust after-treatment system and the procedure for emission test of vehicles equipped with periodically regenerating systems.

This Standard applies to light-duty vehicles, including hybrid electric vehicles, powered by positive-ignition engines or compression-ignition engines, with the maximum design speed of being greater than or equal to 50 km/h.

At the manufacturer's request, type approval may be performed for Category

M 1 , M2 , and N 2 vehicles with the maximum mass exceeding 3500 kg and a reference mass not exceeding 2610 kg in accordance with this Standard; as for the vehicles type approval granted under this Standard may be extended from vehicles mentioned above to M 1 , M 2 , N 1 and N 2 vehicles with a reference mass not exceeding 2840 kg and which meet the conditions laid down in this

Standard.

Particulate matter (PM)

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 Attachment CE.

3.14

Particle numbers (PN)

The total number of particles of a diameter greater than 0.023 µm present in the diluted exhaust gas after it has been conditioned to remove volatile material, as described in Attachment CF.

3.15

Exhaust emissions

Gaseous pollutants and particulate matter emitted from vehicle exhaust pipes.

3.16

Evaporative emissions

The hydrocarbon vapors lost from the fuel (petrol) system of a motor vehicle other than

those from exhaust emissions, including:

(1) "Hot soak losses" are hydrocarbon emissions arising from the fuel system of a stationary vehicle after a period of driving, expressed as

C 1 H 2.20 equivalent.

(2) "Tank breathing losses" are hydrocarbon emissions caused by temperature changes in the fuel tank, expressed as C 1 H 2.33 equivalent.

3.17

Crankcase

The spaces in or external to an engine which are connected to the oil sump by internal or external ducts through which gases and vapor can escape.

3.18

Cold start device

The device that temporarily enriches the air/fuel mixture of the engine thus assisting the engine to start.

3.19

Starting aid

Any element of design which measures or senses vehicle speed, engine rotational speed, transmission gear, temperature, air inlet manifold vacuum or any other parameter for the purpose of activating, to activate, modulate, delay, or deactivate the operation of any part or the function of the emission control system, so that the effectiveness of the emission control system is reduced 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 as a defeat device:

(1) The device required for protecting the engine against damage or accident and for safe operation of the vehicle; or (2) The device that functions only when the engine is started;

(3) The device that does work in Type I or IV tests.

3.27

Properly maintained and used

"Properly maintained and used" means, for the purpose of a test vehicle, that such a vehicle satisfies the criteria for acceptance of a selected vehicle laid down in NA.2.

3.28

Reagent

Any product other than fuel that is stored on the vehicle and is provided to the exhaust after-treatment system upon request of the emission control system.

3.29

Periodically regenerating system

A pollution control device (e.g. catalytic converter, particulate trap) that requires a periodical regeneration process in less than 4000 km of normal vehicle operation.

During cycles where regeneration occurs, emission standards can be exceeded. If a regeneration of a pollution control device occurs at least once per Type I test and that has already regenerated at least once during vehicle preparation cycle, it will be considered as a continuously regenerating system and not suitable for the test procedures for periodically regenerating system specified in Annex P.

If the manufacturer provides data to the type-approval authority that, during cycles where regeneration occurs, emissions remain below the standards given in 5.1.3.4, at the request of the manufacturer, after agreement of the testing organization, the test procedure specific to periodically regenerating (3) A description of the malfunction indicator used by the OBD system.

(4) A declaration that the OBD system complies with the provisions of paragraph IA.7 related to in-use performance under all reasonably foreseeable driving conditions.

(5) A plan describing the detailed technical criteria and justification for incrementing the numerator and denominator of each monitor that shall fulfill the requirements of paragraphs IA.7.2 and IA.7.3, as well as for disabling numerators, denominators and the general denominator under the conditions outlined in paragraph IA.7.7.

(6) A description of the provisions taken to prevent tampering with and modification of the emission control electronic control unit.

(7) If applicable, the particulars of the vehicle family as referred to in

Attachment IB.

(8) Where appropriate, copies of other type approvals accompanied by the relevant data to enable extension of approvals.

4.1.2.2 For the tests described in paragraph I.3, a vehicle representative of the

vehicle type or vehicle family fitted with the OBD system to be approved shall be submitted to the testing organization responsible for the type approval test.

If the testing organization determines that the submitted vehicle does not fully represent the vehicle type or vehicle family described in Attachment IB, an alternative and if necessary, an additional vehicle shall be submitted for test in accordance with paragraph I.3.