



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

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**Limits and measurement methods for exhaust smoke from
non-road mobile machinery equipped with diesel engine**

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Foreword

In order to implement the "Environmental protection law of the People's Republic of China" and the "Air pollution control law of the People's Republic of China", to prevent and control the environmental pollution caused by particulate matter discharged from non-road mobile machinery equipped with diesel engines, this standard is hereby formulated.

This standard specifies the limits and measurement methods for exhaust smoke from non-road mobile machinery equipped with diesel engine. This standard applies to the testing of the exhaust smoke from non-road mobile machinery equipped with diesel engine and on-board diesel equipment. The inspection of the exhaust smoke from the newly-produced and imported non-road mobile machinery equipped with diesel engine may make reference to this standard.

This standard refers to and adopts the relevant technical contents of the

European Commission Directive 77/537/EEC "Directive on the approximation of the laws of the member States relating to the measures to be taken against the emission of pollutants from diesel engines for use in wheeled agricultural or forestry tractors" and GB 3847 "Limits and measurement methods for emissions from diesel vehicles under free acceleration and lugdown cycle".

Appendix A and Appendix B of this standard are normative annexes.

This standard is the first release.

This standard was formulated under the organization of the Department of Atmospheric Environment, Department of Regulations and Standards of the Ministry of Ecology and Environment.

Main drafting organizations of this standard. Beijing Institute of Technology, Jinan Automobile Testing Center Co., Ltd.

This standard was approved by the Ministry of Ecology and Environment on September 27, 2018.

This standard shall be implemented since December 01, 2018.

From the date of implementation of this standard, all relevant local standards shall be abolished.

For this standard, the Ministry of Ecology and Environment is responsible for the interpretation.

Limits and measurement methods for
exhaust smoke from non-road mobile
machinery equipped with diesel engine

1 Scope

This standard specifies the limits and measurement methods for exhaust smoke from non-road mobile machinery equipped with diesel engine and onboard diesel equipment.

This standard applies to the testing of the exhaust smoke from non-road mobile machinery equipped with diesel engine and on-board diesel equipment. The

inspection of the exhaust smoke from the newly-produced and imported non-road mobile machinery equipped with diesel engine may make reference to this standard.

This standard applies to the following (including but not limited to) non-road mobile machinery equipped with diesel engines which is operated at non-constant speeds.

- Construction machinery (including loaders, excavators, bulldozers, road rollers, asphalt pavers, forklifts, off-highway trucks, etc.);
- Agricultural machinery;
- Forestry machinery;
- Material handling machinery;
- Industrial drilling exploration equipment;
- Snow plow equipment;
- Airport ground service equipment.

This standard applies to the following (including but not limited to) non-road mobile machinery equipped with diesel engines which is operated at constant speed.

- Air compressor;
- Power generator set;
- Fishing machinery;
- Water pump.

2 Normative references

The contents of this standard refer to the following documents or their terms.

For undated references, the valid version applies to this standard.

GB 3847-2005 Limits and measurement methods for exhaust smoke from C.I.E. (compression ignition engine) and vehicle equipped with C.I.E.

GB 20891-2007 Limits and measurement methods for exhaust pollutants from diesel engines of non-road mobile machinery (I, II)

3 Terms and definitions

The following terms and definitions apply to this standard.

3.1

Non-road mobile machinery equipped with diesel engine

For non-road types of machinery as mentioned in the "Scope", that is.

3.2

Onboard diesel engine equipment

A diesel-powered vehicle-mounted dedicated device that is used on a vehicle for carrying people (goods) on the road and that does not provide driving force for the vehicle.

3.3

Rated net power (P_{max})

The net power which is indicated by the manufacturer, according to the provisions of GB 20891-2014, for the diesel engine when the information is disclosed.

3.4

Coefficient of light adsorption

The coefficient by which the beam is attenuated by the smoke per unit length, in units of m^{-1} .

3.5

Smoke opacimeter

An instrument which is used for continuously measuring the coefficient of light absorption of exhaust of diesel engine as specified in GB 3847. principle of Ringelmann smoke method as specified in Appendix B.

4.1 Perform testing of exhaust smoke in accordance with clause 5. The opacity

smoke (coefficient of light absorption) and the Ringelmann number of the exhaust from non-road mobile machinery equipped with diesel engine shall not exceed the limits as specified in Table 1.