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

GB/T 8190.5-2019

**Reciprocating internal combustion engines -- Exhaust emission
measurement -- Part 5: Test fuels**

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Foreword

GB/T 8190 "Reciprocating Internal Combustion Engine Emissions Measurement" is divided into 11 parts.

- Part 1. Test bench measurements of gas and particulate emissions;
- Part 2. Field measurements of gas and particulate emissions;
- Part 3. Definition and measurement method of exhaust smoke in steady-state conditions;
- Part 4. Test cycles for engines of different uses;
- Part 5. Test fuel;
- Part 6. Measurement results and test reports;
- Part 7. Determination of the engine family;
- Part 8. Determination of the engine system;
- Part 9. Test cycle and test procedures for test bench measurement of exhaust smoke of transient combustion conditions of compression-ignition engines;
- Part 10. Test cycles and test procedures for on-site measurement of exhaust smoke in transient conditions of compression-ignition engines;
- Part 11. Test bench measurements of gas and particulate emissions under transient conditions of engines for non-road mobile machinery.

This part is the fifth part of GB/T 8190.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 8190.5-2011 "Reciprocating internal combustion engine emission measurement Part 5. Test fuel". versus

The main technical changes compared with GB/T 8190.5-2011 are as follows.

- Removed the scope of application "test cycle specified in GB/T 8190.11" (see Chapter 1,

Chapter 1 of the.2011 edition);

--- Revised the reference standard in the "normative reference document" (see Chapter 2, Chapter 2 of the.2011 edition);

--- Revised the hypothetical way of increasing the quality of sulfates that affect engine sulphate emissions (see Chapter 5,.2011 edition)

Chapter 5);

--- Revised the calculation formula for the effect of sulfur on particulate matter emissions (see Chapter 5, Chapter 5 of the.2011 edition);

--- Modified the fuel for the USA certification test (see 6.3, 6.3 of the.2011 edition);

--- Revised the source of EU standard fuel and general fuel performance specifications (see Chapter 6, Table 1, Table 5, Table 9, etc.,.2011 edition)

Chapter 6, Table 1, Table 5, Table 9, etc.);

--- Revised the fuel performance table (see Chapter 6 of the table, Chapter 6 of the.2011 edition);

--- Deleted the informative appendix "Organizations that provide commercial fuel specifications" (Appendix C of the.2011 edition).

This section uses the translation method equivalent to ISO 8178-5.2015 "Reciprocating Internal Combustion Engine Emissions Measurement Part 5. Test Fuels".

The documents of our country that have a consistent correspondence with the international documents referenced in this part are as follows.

--- GB/T 12692.2-2010 Petroleum products (Class F) Classification Part 2. Types of marine fuel oil (ISO 8216-

1.2005, IDT)

This section has made the following editorial changes.

--- Modify the non-standard unit description in this part of the table.

This part was proposed by the China Machinery Industry Federation.

This part is under the jurisdiction of the National Internal Combustion Engine Standardization Technical Committee (SAC/TC177).

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1 Scope

This part of GB/T 8190 specifies the fuel recommended for emission measurement in accordance with the emission test cycle described in GB/T 8190.4.

This section applies to reciprocating internal combustion engines for mobile, transport and stationary installations, but does not include automotive engines designed primarily for roads. this

Some also apply to engines such as earthmoving machinery, generator sets and other uses.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 8190.1-2010 - Determination of emissions from reciprocating internal combustion engines - Part 1

(ISO 8178-1:2006, IDT)

ISO 4264 Four-variable equation calculation method for cetane index of middle distillate fuel in petroleum products (Petroleumproducts-Cal-

Culationofcetaneindexofmiddle-distillatefuelsbythefour-variableequation)

ISO 8216-1 Petroleum Products Fuels (Class F) Classification Part 1. Marine Fuel Oil Types [Petroleumproducts-

Fuels(classF)-Classification-Part 1.Categoriesofmarinefuels]

ISO 8217 Petroleum Products Fuel (Class F) Marine Fuel Specification [Petroleumproducts-Fuels(classF)-Specifi-

Cationsofmarinefuels]

3 Terms and definitions

The following terms and definitions apply to this document.

Note. See the corresponding definitions in the standards listed in the Appendix B table.

3.1

Carbon residue carbonresidue

The residue left by petroleum products after controlled thermal decomposition under conditions of insufficient oxygen (air).

Note. The previously used Conrad's carbon residue method and the Rex's carbon residue method have been basically replaced by the trace residual carbon method.

[ISO .1998-2.1998, 2.50.001]

3.2

Cetane index cetaneindex

The values used to represent the approximate cetane number are calculated by density and distillation range.

Note. The calculation formula is obtained by statistically analyzing a large number of representative samples from diesel fuels with cetane number and distillation range known worldwide. Therefore every

Revised 5 to 10 years. The current formula is given in ISO 4264. This formula does not apply to fuels containing combustion improvers.

[ISO .1998-2.1998, 2.30.111]

3.3

Cetane number cantenenumber

A general measure of the ignition performance of diesel fuels under standard conditions.