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Diesel fuel for motor vehicles

车用柴油

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Foreword

The full text of this standard is mandatory.

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces DB11/ 239-2012 "Diesel fuel for motor vehicles". DB11/ 239-2012 is abolished from the date of implementation of this standard.

The main changes in this standard compared to DB11/ 239-2012 are as follows:

- ADD the introduction, which describes the purpose and significance of the revision of the diesel fuel for motor vehicles as well as the related matters of B5 diesel fuel for motor vehicles;
- MODIFY the scope into "This standard applies to diesel fuel used in compression ignition diesel engine vehicles, made from petroleum and coal or added with additives to improve performance; it also applies to the B5 diesel fuel for motor vehicles which uses the biodiesel as a blending component";
- ADD the terms and definitions for "B5 diesel fuel for motor vehicles" (see 3.1);
- MODIFY the clause 4.2 to "At an eye-catching position of the diesel fuel dispenser for motor vehicles, it shall indicate the 'standard number + space + designation + diesel fuel for motor vehicle' or 'designation + JING VI + diesel'";
- MODIFY the content of polycyclic aromatic hydrocarbon to "not more than 7% (mass fraction)";
- MODIFY the density (20 °C) into "820 kg/m³ ~ 845 kg/m³ for No.5, No.0, No.10; 800 kg/m³ ~ 840 kg/m³ for No.-20, No.-35";
- MODIFY the kinematic viscosity (20 °C) into "2.5 mm²/s ~ 7.5 mm²/s for No.5, No.0; 2.0 mm²/s ~ 7.5 mm²/s for No.-10, No.-20; 1.5 mm²/s ~ 6.5 mm²/s for No.-35";
- MODIFY the flash point (closed-cup) "not less than 60 °C for No.5, No.0, No.-10; not less than 55 °C for No.-20 and No.35";
- MODIFY the clause 5.2 into "Technical requirements and test methods for diesel fuel for motor vehicle shall comply with the requirements of Table 1. Among them, the technical requirements and test methods for B5 diesel fuel for motor vehicle are as shown in Appendix A";

Diesel fuel for motor vehicles

1 Scope

This standard specifies the product classification, marking, technical requirements, test methods, sampling, packaging, marking, transportation, storage, safety of the diesel fuel for motor vehicles.

This standard applies to diesel fuel used in compression ignition diesel engine vehicles, made from petroleum and coal or added with additives to improve performance; it also applies to the B5 diesel fuel for motor vehicles which uses the biodiesel as a blending component.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

GB/T 258 Determination of acidity of gasoline, kerosene and diesel fuels

GB/T 260 Test method for water in petroleum products - Distillation method

GB/T 261 Determination of flash point - Pensky-Martens closed cup method

GB/T 265 Petroleum products - Determination of kinematic viscosity and calculation of dynamic viscosity

GB/T 268 Petroleum products - Determination of carbon residue (Conradson method)

GB/T 386 Standard test method for cetane number of diesel fuel oil

GB/T 508 Petroleum products - Determination of ash

GB/T 510 Petroleum products - Determination of solidification point

GB/T 511 Petroleum products and additives - Method for determination of mechanical admixtures

GB/T 1884 Crude petroleum and liquid petroleum products - Laboratory determination of density - Hydrometer method

SH/T 0604 Crude petroleum and petroleum products-Determination of density - Oscillating U-tube method

SH/T 0606 Standard test method for hydrocarbon types in middle distillates by mass spectrometry

SH/T 0689 Standard test method for determination of total sulfur in light hydrocarbons motor fuels and oils by ultraviolet fluorescence

SH/T 0694 Calculation of cetane index of middle - Distillate fuels by the four - Variable equation

SH/T 0765 Diesel fuel - Assessment of lubricity using the high-frequency reciprocating rig (HFRR)

NB/SH/T 0842 Standard test method for sulfur in gasoline and diesel fuel by monochromatic wavelength dispersive X-ray fluorescence spectrometry

ASTM D7371 Standard test method for determination of biodiesel (fatty acid methyl esters) content in diesel fuel oil using mid infrared spectroscopy (FTIR-ATR-PLS Method)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

B5 diesel fuel for motor vehicles

Blended fuel of 1% ~ 5% biodiesel (BD100) and 95% ~ 99% petroleum diesel.

4 Classification and marking of products

4.1 Classification of products

The diesel fuel for motor vehicles is divided into five designations according to the freezing point:

No.5 diesel fuel for motor vehicle: It is suitable for use in climatic conditions where the minimum temperature at a risk rate of 10% is above 8 °C;

No.0 diesel fuel for motor vehicle: It is suitable for use in climatic conditions where the minimum temperature at a risk rate of 10% is above 4 °C;

No.-10 diesel fuel for motor vehicle: It is suitable for use in climatic conditions where the minimum temperature at a risk rate of 10% is above -5 °C;

Appendix A

(Normative)

Technical requirements and test methods for B5 diesel fuel for motor vehicles

A.1 Technical requirements and test methods for B5 diesel fuel for motor vehicles

Biodiesel (BD100) shall meet the technical requirements of GB/T 20828 and its latest version of this standard. The technical requirements and test methods for B5 diesel fuel for motor vehicle are as shown in Table A.1.

Table A.1 -- Technical requirements and test methods for B5 diesel fuel for motor vehicle

Item	Quality indicators			Test methods
	No.5	No.0	No.-10	
Oxidation stability, total insoluble ^a , mg/100mL, not more than	2.5			SH/T 0175
Sulfur content ^b , mg/kg, not more than	10			SH/T 0689
Acidity (in KOH), mg/100mL, not more than	7			GB/T 258
10% steam residue carbon residue ^c , % (mass fraction), not more than	0.3			GB/T 17144
Ash content, % (mass fraction), not more than	0.01			GB/T 508
Copper strip corrosion (50 °C, 3 h), grade, not more than	1			GB/T 5096
Moisture, % (volume fraction), not more than	0.030			SH/T 0246
Mechanical impurities ^d	None			GB/T 511
Kinematic viscosity (20 °C), mm ² /s	2.5 ~ 7.5		2.0 ~ 7.5	GB/T 265
Flash point (closed cup), °C, not less than	60			GB/T 261
Cold filter point ^e , °C, not more than	8	4	-5	SH/T 0248
Freezing point, °C, not more than	5	0	-10	GB/T 510
Cetane number, not less than	51			GB/T 386
Density ^f (20 °C), kg/m ³	820 ~ 845			GB/T 1884, GB/T 1885
Distillation range:				GB/T 6536
50% distillation temperature, °C, not more than	300			
90% distillation temperature, °C, not more than	355			
95% distillation temperature, °C, not more than	365			
Lubricity				SH/T 0765
Corrective wear spot diameter (60 °C), μm, not more than	460			
Biodiesel (fatty acid methyl ester, FAME) content ^g , % (volume fraction)	1.0 ~ 5.0			GB/T 23081

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