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AUTOMOBILE INDUSTRY STANDARD
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Technical specifications of methanol fuel vehicle

甲醛燃料汽车技术条件

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Annex:**Numbers, names and implementation dates of 13 automotive industry standard**

No.	Standard No.	Standard name	Replaced standard No.	Date of implementation
402	QC/T 1145-2021	Diesel/methanol dual-fuel engine - Technical specifications		2021-07-01
403	QC/T 1150-2021	Fuel system technical specifications of methanol vehicle		2021-07-01
404	QC/T 1151-2021	Technical specifications of methanol-fueled vehicle		2021-07-01
405	QC/T 1142-2021	Test method of natural frequency for automobile wheels		2021-07-01
406	QC/T 1143-2021	Test method for static bending stiffness of automobile wheels		2021-07-01
407	QC/T 417-2021	Electrical wire harness assemblies for motorcycles and mopeds	QC/T 417.2-2001	2021-07-01
408	QC/T 1144-2021	Oxygen sensor for motorcycles and mopeds		2021-07-01
409	QC/T 1146-2021	Technical requirements for methanol fuel engines		2021-07-01
410	QC/T 1147-2021	Electronically controlled silicon oil fan clutch for automobile engine		2021-07-01
411	QC/T 1148-2021	Electric opening and closing system for automobile back door		2021-07-01
412	QC/T 207-2021	Ordinary gas spring for automobile	QC/T 207-1996	2021-07-01
413	QC/T 629-2021	Automobile sun shield	QC/T 629-2005	2021-07-01
414	QC/T 1130-2021	Measurement methods fuel consumption for methanol vehicles		2021-07-01

Technical specifications of methanol fuel vehicle

1 Scope

This document specifies the terms and definitions, technical requirements, test methods, inspection rules, signs, labels, instructions for use, transportation, storage of methanol fuel vehicles.

This document applies to methanol fuel vehicles.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, for dated reference documents, only the version corresponding to that date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 3181-2008 Color standard for paint film

GB/T 3730.1 Motor vehicles and trailers - Types - Terms and definitions

GB 7258 Technical specifications for safety of power-driven vehicles operating on roads

GB/T 15089 Classification of power-driven vehicles and trailers

GB 17691 Limits and measurement methods for emissions from diesel fueled heavy-duty vehicles (CHINA VI)

GB 17930 Gasoline for motor vehicles

GB 18352.6 Limits and measurement methods for emissions from light-duty vehicles (CHINA 6)

GB 19147 Automobile diesel fuels

GB/T 21085 Qualified certificate of vehicle

QC/T 1130 Measurement methods fuel consumption for methanol vehicles

QC/T 1145 Technical specifications for diesel/methanol dual fuel engine

A device for storing and supplying M100 automobile methanol fuel for methanol vehicles, including methanol fuel tank assembly, methanol level gauge, methanol pump, methanol filter, pressure regulating valve, methanol pipeline, etc.

3.3

Methanol substitution rate (MSR)

For diesel/methanol dual-fuel vehicles, under the test conditions specified in QC/T 1130, the mass percentage of diesel consumption in pure diesel mode minus diesel consumption in dual-fuel mode TO the diesel consumption in pure diesel mode.

4 Technical requirements

4.1 General requirements

4.1.1 Methanol fuel vehicles (hereinafter referred to as methanol vehicles) shall comply with relevant national mandatory standards.

4.1.2 All parts, which are in contact with methanol fuel or its combustion products, shall be subject to treatment of corrosion protection.

4.1.3 The auxiliary fuel tank volume of the categories M₁, M₂, N₁, N₂ methanol mono-fuel vehicles is not more than 15L. The auxiliary fuel tank volume of categories M₃ and N₃ methanol mono-fuel vehicles is not more than 100L.

4.1.4 For methanol vehicles, a special marking for methanol vehicles shall be affixed to a conspicuous position on the front of the vehicle. The marking shall comply with the provisions of Appendix A.

4.1.5 The methanol fuel engine, which is equipped on methanol vehicles, shall meet the requirements of QC/T 1146. The equipped diesel/methanol dual-fuel engine shall meet the requirements of QC/T 1145.

4.1.6 Methanol vehicles shall use special lubricants for methanol engines.

4.1.7 Methanol automobile fuel shall meet the following requirements:

- a) M100 automobile methanol fuel, which is used in methanol vehicles, shall comply with relevant national standards;
- b) The auxiliary fuel gasoline, which is used in methanol mono-fuel vehicles, shall meet the requirements of GB 17930;
- c) The diesel, which is used in diesel/methanol dual-fuel vehicles, shall meet

the requirements of GB 19147.

4.1.8 When the remaining fuel (including gasoline, diesel, methanol) of the methanol vehicle is lower than the set value, it shall issue an alarm to the driver.

4.1.9 For methanol vehicles, it is not allowed to manually switch the fuel status. Meanwhile, the fuel status of the entire vehicle shall be able to be read, through the OBD scanning tool. The fuel type signal shall comply with the requirements of ISO 15031-5.

4.2 Pollutant discharge requirements

4.2.1 Emissions of methanol vehicles, which have a capacity of not more than 3500 kg, shall meet the requirements of GB 18352.6. The emissions of methanol vehicles, which have a capacity of more than 3500 kg, shall meet the requirements of GB 17691.

4.2.2 The emissions of formaldehyde and unburned methanol from methanol vehicles shall comply with relevant national standards.

4.3 Performance requirements of methanol fuel system

4.3.1 The methanol tank, methanol pump, methanol pipeline and other parts, in the methanol fuel system device shall be installed far away from heat sources, such as the supercharger in the exhaust system, exhaust pipeline, after-treatment device, etc. If necessary, provide thermal insulation device.

4.3.2 The methanol fuel system shall meet the following requirements:

- a) The methanol fuel supply device shall be equipped with a methanol evaporation control device;
- b) The gasoline fuel system shall be equipped with gasoline evaporation control device;
- c) Methanol fuel pipelines shall be distinguished from other fuel pipelines by marking;
- d) There shall be a clear reminder mark of the fuel type, at the methanol fuel filling port;
- e) For the other parts and components on the methanol vehicles, than methanol vehicle fuel supply devices, that may come into contact with methanol fuel, due to methanol fuel refueling, maintenance, repairs, other reasons, it shall consider the methanol resistance of the parts.

4.3.3 The alcohol-related parts of the methanol fuel system device, including the methanol fuel tank assembly, the methanol level gauge, the methanol pump,

- d) When a major quality accident occurs OR the national quality supervision agency puts forward a type test request.

6.3.2 In the type inspection, if it falls into the two cases a) and b) in 6.3.1, the inspection shall be carried out, in accordance with the contents of Chapter 4 and relevant national regulations. If it falls into the two cases c) and d), it may only inspect the affected items.

7 Signs, labels, instructions for use

7.1 Signs

The sign of the methanol vehicle shall comply with the relevant requirements of GB 7258. The type of fuel used shall be marked on the vehicle nameplate. Fill in methanol for mono-fuel methanol vehicles; fill in diesel/methanol for diesel/methanol dual-fuel vehicles.

7.2 Label

The methanol automobile's product certificate shall meet the requirements of GB/T 21085.

7.3 Instructions for use

In addition to complying with the provisions of GB 7258, the methanol vehicle's instruction for use shall also include the following content on methanol vehicles:

- a) Use (including the types of fuel and lubricating oil);
- b) Maintenance;
- c) The structure of the main assembly AND its inspection and adjustment;
- d) Electrical equipment;
- e) Common faults and troubleshooting methods;
- f) Warning signs;
- g) Methanol substitution rate (only applicable to diesel/methanol dual-fuel vehicles);
- h) Product's implemented standard number.

8 Transportation and storage

8.1 Transportation

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