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SH

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

SH/T 0712-2002

**Standard test method for iron in gasoline by atomic absorption
spectroscopy
(English Translation)**

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1 Scope

1.1

This Standard applies to the determination of total iron in gasoline. The determination range of iron is 2.0mg/L~25.0mg/L.

1.2

This Standard also applies to gasoline containing methyl tert-butyl ether (MTBE), tert-amyl methyl ether (TAME), and ethanol. The determination of iron content in gasoline with other concentration ranges or containing other oxygenated chemicals has not been tested.

1.3 This Standard does not make recommendations on all safety issues

involved. Users of this Standard, before use, shall establish appropriate safety precautions and determine appropriate rules and regulations.

2 Referenced standards

The following standards contain the provisions which, through reference, constitute part of this Standard. Unless otherwise expressly stated in the standard, the following referenced standards shall be current valid standards.

GB/T 4756 Method for manual sampling of petroleum liquids

GB/T 6683 Petroleum products - Determination of precision data in relation to methods of test

SH 0005 Paint industrial solvent oil

3 Method summary

The gasoline sample is treated using an iodine-toluene solution. After using a solution of methyl tricaprylammonium chloride-methyl isobutyl ketone (MIBK) to dilute, USE an atomic absorption spectrometer, at 248.3nm, to determine the iron content in the sample.

care shall be taken to ventilation and to avoid inhalation and contact with the skin.

6.8 10% (V/V) methyl tricaprylammonium chloride-MIBK solution. USE MIBK to dissolve 88.0g (100mL) of methyl tricaprylammonium chloride and dilute to 1L.

6.9 1% (V/V) methyl tricaprylammonium chloride-MIBK solution. USE MIBK to dissolve 8.8g (10mL) of methyl tricaprylammonium chloride and dilute to 1L.

6.10 Solvent oil. It meets the requirements of SH 0005.

7.1 Preparation of iron standard solution A (264.20mg/L). Accurately WEIGH

0.231g (accurate to 0.1mg) of ferrocene in a 100mL beaker; USE 10% (V/V) methyl tricaprylammonium chloride-MIBK solution to dissolve; TRANSFER the solution to a 250mL volumetric flask; USE 10% (V/V) methyl tricaprylammonium chloride-MIBK solution to dilute to volume; and SHAKE well.

7.2 Preparation of iron standard solution B, C, D (5.28mg/L, 13.21mg/L, and

26.42mg/L). Accurately PIPETTE 1.0mL, 2.5mL, and 5.0mL of iron standard solution A in three 50mL volumetric flasks; ADD 5.0mL of 1% (V/V) methyl tricaprylammonium chloride-MIBK solution respectively; and USE MIBK to dilute to volume.

7.3 Preparation of iron standard working curve solution (0.53mg/L, 1.32mg/L, and 2.64mg/L). ADD 30mL of MIBK and 5.0mL of solvent oil to four 50mL volumetric flasks respectively. Three of them are added with 5.0mL of iron standard solution B, C, and D respectively; and the other is used as the blank.

USE a 0.5mL pipette to add 0.1mL of iodine-toluene solution to the four volumetric flasks respectively; SHAKE well; react for about 1min; then ADD

5.0mL of 1% (V/V) methyl tricaprylammonium chloride-MIBK solution; USE

MIBK to dilute to volume.

8 Sampling

Sampling shall be carried out according to the requirements of GB/T 4756.

Gasoline sample shall be directly put into a light resistant container and analyzed as soon as possible.

9.1 Apparatus regulation. According to the instructions in the apparatus

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