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

GB 18047-2017

compressed natural gas as vehicle fuel

车用压缩天然气

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Foreword

4.1 of this Standard is mandatory. The rest are recommendatory. This Standard is drafted in accordance with the rules given in GB/T 1.1-2009. This Standard replaces GB 18047-2000 "Compressed natural gas as vehicle fuel". As compared with GB 18047-2000, the main changes of this Standard are as follows: - REVISE technical specifications for total sulfur. It is changed from "not more than 200 mg/m³" to "not more than 100 mg/m³" (SEE Table 1); - REVISE technical specifications for water dew point. The minimum requirement that "under the maximum operating pressure, the water dew point shall be not higher than -13 °C" is changed to "the mass concentration of water shall not be more than 30 mg/m³", which is recommended in ISO 15403-2.2006; - ADD test methods for various indicators and POINT out arbitration methods at the same time; - MODIFY the gas categories in Appendix B; MODIFY the indicators for 10T and 12T gas; CANCEL 13T gas. This Standard shall be under the jurisdiction of China National Gas Standardization Technology Committee (SAC/TC 244). Drafting organizations of this Standard. PetroChina Southwest Oil & Gasfield Branch Natural Gas Research Institute, North China Municipal Engineering Design & Research Institute Co., Ltd., China Petroleum Engineering & Construction Corp East China Design Branch, China National Offshore Oil Corporation Research Institute. Main drafters of this Standard. Tang Meng, Wu Hongsong, Chi Yongjie, Zhang Yanxia, He Bin, He Yongming, Cui Dechun, Li Shengshan. The previous release of version of the standard replaced by this Standard is. - GB 18047-2000. Compressed natural gas as vehicle fuel

1 Scope

GB 18047-2017 is the Chinese national standard on compressed natural gas as vehicle fuel, in the field of petroleum and related technologies. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 7

September 2017 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 April 2018. Classification: ICS 75.060, CCS E24. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Standard specifies the technical requirements and test methods of compressed natural gas as vehicle fuel. This Standard applies to the compressed natural gas of which the pressure is not more than 25 MPa as vehicle fuel.

2 Normative references

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

GB/T 11060.1 Natural gas - Determination of sulfur compound - Part 1. Determination of hydrogen sulfide content by iodometric titration method

GB/T 11060.2 Natural gas - Determination of Sulfur Compound - Part 2. Determination of Hydrogen Sulfide Content by Methylene Blue Method

GB/T 11060.3 Natural gas - Determination of sulfur compound - Part 3. Determination of hydrogen sulfide content by lead acetate reaction rate dual photo path method

GB/T 11060.4 Natural gas - Determination of sulfur compound - Part 4. Determination of total sulfur content by oxidative microcoulometry method

GB/T 11060.5 Natural gas - Determination of sulfur compound - Part 5. Determination of total sulfur content by hydrogenolysis and rateometric colorimetry method

GB/T 11060.7 Natural gas - Determination of sulfur compounds - Part 7. Determination of total sulfur content by Lingener combustion method

GB/T 11060.8 Natural gas - Determination of sulfur compound - Part 8. Determination of total sulfur content by Ultraviolet fluorescence method

3 Terms and definitions

The following terms and definitions are applicable to this document.

3.1 Compressed natural gas; CNG The compressed gas fuel of which the main component is methane.

4 Technical requirements and test methods

4.1 The technical specifications of compressed natural gas as vehicle fuel shall conform to the provisions of Table 1.

4.2 The calculation of the higher heating value of compressed natural gas as vehicle fuel shall be carried out according to GB/T11062. The determination of the composition of natural gas on which it is based shall be carried out according to GB/T13610, GB/T 27894.3, GB/T 27894.4, GB/T 27894.5, or GB/T 27894.6. The arbitration test method is GB/T 13610.

4.3 The determination of the content of total sulfur in compressed natural gas as vehicle fuel shall be carried out according to GB/T 11060.4, GB/T 11060.5, GB/T 11060.7, or GB/T 11060.8. The arbitration test method is GB/T 11060.4.

4.6 The determination of oxygen content in natural gas as vehicle fuel shall be carried out according to GB/T 13610, GB/T 27894.3, GB/T 27894.4, GB/T 27894.5, or GB/T 27894.6. The arbitration test method is GB/T 13610.

4.7 The determination of water content and water dew point of compressed natural gas as vehicle fuel shall be carried out according to GB/T 17283, GB/T 18619.1, GB/T 21069, or GB/T 27896.

5 Storage and use

5.1 The storage vessels of compressed natural gas shall comply with the relevant provisions of TSGR 0004 or GB/T 19158. The steel cylinders for compressed natural gas as vehicle fuel shall comply with the relevant provisions of GB/T 17258.

5.2 Under operating pressure and temperature, there shall be no liquid hydrocarbon in compressed natural gas as vehicle fuel.

5.5 When using compressed natural gas as vehicle fuel, it shall consider the antiknock performance. The calculation method of methane number of natural gas is given in Appendix A.

5.6 When using compressed natural gas as vehicle fuel, it shall consider the Wobbe index. The gas category of compressed natural gas in the same area shall be kept unchanged. The gas categories of compressed natural gas are given in Appendix B.

6 Inspection

6.1 The sampling of compressed natural gas as vehicle fuel shall be carried out according to GB/T 13609.

6.2 In normal production, the water content of products must be inspected daily, to ensure

that there is no liquid water in compressed natural gas.

Appendix A

(Informative) Calculation method of methane number A.1 Definition of methane number MN Methane Number An agreed value which represents the antiknock quality of fuel of spark ignition engine. A.2 Octane number and methane number A.2.1 Correlation between octane number and methane number The U.S. Gas Technology Institute (GRI) [should be. GTI] used ASTM's evaluation method of octane number to measure the motor octane number (MON) of gas fuel. The measurement results show that, the MON of pure methane is about 140; the MON of most natural gas is 115~130. The MON of peak-shaving gas with high propane content (17%~25%) is 96~