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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 12701-2014

Replacing GB/T 12701-1990

Ethylene and propylene for industrial use - Determination of trace oxygenates - Gas chromatographic method

工业用乙烯、丙烯中微量含氧化合物的测定 气相色谱法

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Standardization Administration of the PRC

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules. This standard replaces GB/T 12701-1990 "industrial use of ethylene, propylene trace of methanol by gas chromatography." This standard and GB/T 12701-1990 compared to the main changes are as follows:

--- Standard name was changed to "industrial use of ethylene, propylene trace oxygen-containing compounds by Gas Chromatography";

--- By the range of the standard "applies to the methanol content of greater than 1mg/kg sample" to "apply to methanol, dimethyl ether, methyl tert-butyl Ether, acetaldehyde, ethanol, isopropanol, acetone and methyl ethyl ketone concentration of not less than 0.5mg/m3 of ethylene, propylene, "(see Chapter 1, 1990 Chapter 1 edition of);

--- Modify the column by a packed column capillary column (see Chapter 5, Table 1, the 1990 edition Chapter 5);

--- Revised standards formulated relevant content (see Chapter 4, Chapter 4 of the 1990 edition);

--- Modify the vaporization means and injection means the content (see Chapter 5, Chapter 5 of the 1990 edition);

--- Cancel the original standard absorber and sample enrichment operations related content (see the 1990 edition Chapter 5, Chapter 6);

--- Modify the calculation and the results indicate the content (see Chapter 8, 1990 edition of Chapter 7, Chapter 8). The standard proposed by China Petroleum and Chemical Corporation. This standard by the National Standardization Technical Committee Petrochemical Chemical Technical Committee (SAC/TC63/SC4) centralized. This standard was drafted. China Petroleum & Chemical Corporation Shanghai Research Institute of Petrochemical. The main drafters of this standard. Li Wei, Tang Qimin. This standard replaces the standards previously issued as follows:

--- GB/T 12701-1990. Industrial ethylene, propylene containing trace Gas chromatography

oxides

1 Scope

China's national method for the trace oxygenated compounds in industrial ethylene and propylene - the impurities that decide whether a cargo of monomer can be polymerised at all, because the Ziegler-Natta and metallocene catalysts used to make polyethylene and polypropylene are poisoned by oxygenates at the parts per million level and the damage shows up as lost activity in the reactor rather than as anything visible in the feed. The standard specifies the determination of the trace oxygenates in ethylene and propylene for industrial use by gas chromatography. It covers methanol, dimethyl ether, methyl tert-butyl ether, acetaldehyde, ethanol, isopropanol, acetone and methyl ethyl ketone at concentrations of not less than 0.5 mL/m3. The list is not arbitrary: ethylene and propylene made by the traditional petroleum route usually carry methanol as their oxygenate impurity, while the coal to olefins route can introduce the others as well, so the method has to cover both origins. The determination is made on a gas sample injected directly onto a column able to separate the oxygenates from the bulk olefin, with the sampling itself carried out in accordance with GB/T 13289 for ethylene and GB/T 13290 for propylene and under the general safety rules of GB/T 3723, and the results expressed and judged against the limits in accordance with the rounding rules of GB/T 8170. The standard states expressly that it does not address all the safety problems associated with its use and that it is for the user to establish the appropriate safety and health practices. Issued on 8 July 2014 and in force since 1 December 2014, it replaces GB/T 12701-1990.

1.1 standard specifies the determination by gas chromatography for industrial use ethylene content propylene trace oxygenates.

1.2 This standard applies to methanol, dimethyl ether, methyl tert-butyl ether, acetaldehyde, ethanol, isopropanol, acetone and methyl ethyl ketone concentration of not less than Ethylene 0.5mL/m3, the measurement of propylene.

Note. The traditional routes of oil production of ethylene and propylene products usually contain methanol, an oxygen-containing compound impurities; coal to olefins technology to produce ethylene, propylene Products may contain methanol and

1.2 other oxygenates impurities.

1.3 This standard is not intended to illustrate its use of all safety-related issues. The user's responsibility to take appropriate safety and health measures Facilities, to ensure compliance with the provisions of the relevant national regulations.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references,

the latest edition (including any amendments) applies to this document.

GB/T 3723 Sampling of chemical products for industrial use General Safety (GB/T 3723-1999, idt ISO 3165. 1976)

GB/T 8170 repair value expressed about the rules and limit values \u200b\u200band judgment

GB/T 13289 Industrial liquid and gaseous ethylene sampling method (GB/T 13289-2014, ISO 7382. 1986, NEQ)

GB/T 13290 Industrial liquid propylene and butadiene sampling method (GB/T 13290-2014, ISO 8563. 1987, NEQ)

3 PRINCIPLE OF THE METHOD

Under the conditions specified in this standard, (or after vaporization of the liquid) sample gas through the gas injection means is a carrier gas into the column. So each containing Oxygen compound component separation, detection by flame ionization detector (FID). Record the oxygen-containing compound component peak area using external standard method Quantified.

4 Reagents and materials

4.1 The carrier gas Helium or nitrogen. purity >=99.99% (volume fraction), silica gel and molecular sieve 5A dried, purified.

4.2 auxiliary gas

4.2.1 Hydrogen. purity >=99.99% (volume fraction), silica gel and molecular sieve 5A dried, purified.

4.2.2 Air. silica gel and molecular sieve 5A dried, purified.

4.3 oxygenate Methanol, dimethyl ether, methyl tert-butyl ether, acetaldehyde, ethanol, isopropanol, acetone and methyl ethyl ketone, etc., used for the preparation of standards. Purity should not be less than 99.0% (mass fraction).