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Dimethyl ether (DME) for fuels — Determination of impurities — Gas chromatographic method

Diméthylether (DME) pour carburants et combustibles — Détermination des impuretés — Méthode par chromatographie en phase gazeuse

Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

The committee responsible for this document is ISO/TC 28, *Petroleum products and lubricants*, Subcommittee SC 4, *Classifications and specifications*.

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Introduction

Throughout the manufacturing process, impurities can generate in the dimethyl ether (DME). In addition, there is a possibility that DME becomes contaminated during loading and transportation by sea and/or various land transportations. Examples of such impurities include methanol, water, carbon dioxide, ethyl methyl ether, sulfur, residues, and so on.

Gas chromatography is recommended to analyse many kinds of vaporizable impurities.

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Dimethyl ether (DME) for fuels — Determination of impurities — Gas chromatographic method

WARNING — The use of this International Standard can involve hazardous materials, operations, and equipment. This International Standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this International Standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

1 Scope

This International Standard specifies a procedure of test for methanol, CO, CO_2, methyl formate, ethyl methyl ether, and hydrocarbons up to C_4, in DME used as fuel by the gas chromatography method. This procedure is applicable to determine the amount of methanol, CO, CO_2, methyl formate, ethyl methyl ether, and hydrocarbons up to C_4, up to the value specified in ISO 16861.

NOTE The precision of this method has been studied for a limited set of samples and content levels by a limited number of labs. It allows establishment of a quality specification of DME but cannot be considered as a full precision determination in line with the usual statistical methodology as in ISO 4259.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6975, *Natural gas — Extended analysis — Gas-chromatographic method*

ISO 16861, *Petroleum products — Fuels (class F) — Specifications of Dimethylether (DME)*

ISO 29945, *Refrigerated non-petroleum-based liquefied gaseous fuels — Dimethylether (DME) — Method of manual sampling onshore terminals*

3 Terms and definitions

For the purposes of this document, the following terms and definitions given in ISO 6975 and the following apply.

3.1
components
DME, methanol, ethyl methyl ether, methyl formate, carbon dioxide, carbon monoxide, hydrocarbons up to C_4

3.2
hydrocarbons (up to C_4)
components such as ethane (C_2H_6), ethylene (C_2H_4), propane(C_3H_8), propylene(C_3H_6), i-butane(i-C_4H_{10}), n-butane(n-C_4H_{10}), i-butene (i-C_4H_8), 1-butene (1-C_4H_8), trans-2-butene (trans-2- C_4H_8), cis-2-butene (cis-2- C_4H_8), and 1,3-butadiene (1,3-butadiene)

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