International Standard 5279

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Toluene — Determination of hydrocarbon impurities — Gas chromatographic method

Toluène — Détermination des impuretés hydrocarbonées — Méthode par chromatographie en phase gazeuse

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 5279 was developed by Technical Committee ISO/TC 78, *Aromatic hydrocarbons*, and was circulated to the member bodies in July 1979.

It has been approved by the member bodies of the following countries :

Australia	Hungary	Poland
Austria	India	Romania
Chile	Italy	South Africa, Rep. of
Czechoslovakia	Korea, Rep. of	United Kingdom
Egypt, Arab Rep. of	Libyan Arab Jamahiriya	USSR
France	Mexico	
Germany, F. R.	Netherlands	

No member body expressed disapproval of the document.

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Toluene — Determination of hydrocarbon impurities — Gas chromatographic method

1 Scope and field of application

1.1 This International Standard specifies a gas chromatographic method for the quantitative determination of hydrocarbon impurities in commercial toluene. It is applicable to the determination of benzene, C_8 aromatics and non-aromatics up to *n*-nonane, in the range 0,01 to 1,00 % (*m*/*m*).

1.2 The materials and procedures described in this International Standard are satisfactory for the analysis, but alternatives that will give equivalent results may also be used. They must, however, give complete separation of the group of non-aromatics up to C_9, benzene, *n*-decane, toluene and the group of C_8 aromatics.

2 Reference

ISO 1995, *Aromatic hydrocarbons — Sampling*[1].

3 Principle

Addition of a known amount of internal standard to a test portion and introduction of an aliquot portion of this mixture into the separating column of a gas chromatograph by means of a syringe. Sweeping of the vaporized mixture through the column by a flow of carrier gas, detection of each component as it emerges by a flame ionization detector and recording as a peak on a chromatogram.

Identification of the impurities by their relative retention times and quantitative determination from their peak areas relative to the peak area of the internal standard.

The relative response of the detector to the various components is taken into consideration in the calculation.

4 Materials

NOTE — Materials required for preparation of the chromatography column are specified in 5.3.1.

4.1 Carrier gas, either helium or hydrogen, of low oxygen content [preferably 0,000 5 % (*V*/*V*) max.].

CAUTION — Hydrogen forms highly explosive mixtures with air. Its use should always be accompanied by appropriate precautions to ensure that leaks, etc., are not allowed to cause build up of dangerous concentrations of the gas.

4.2 Air supply.

4.3 Hydrogen supply.

4.4 *n*-Hexane, gas chromatography standard, free from components coeluting with benzene, *n*-decane, and ethyl benzene.

4.5 Internal standard, *n*-decane, purity 99 % (*m*/*m*) minimum.

4.6 Calibration materials, all having a purity of at least 99 % (*m*/*m*).

4.6.1 Benzene.

4.6.2 Ethylbenzene.

5 Apparatus

Usual laboratory equipment and in particular

5.1 Chromatograph.

Any gas chromatograph fitted with a flame ionization detector and capable of meeting the required operating conditions may be used. The instrument shall have sufficient sensitivity to obtain a peak height when using a mixture containing 0,005 % (*m*/*m*) ethylbenzene, under the specified operating conditions, of at least twice the noise level.

1) At present at the stage of draft.