International Standard 4626

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Volatile organic liquids — Determination of boiling range of organic solvents used as raw materials

Liquides organiques volatils — Détermination de l'intervalle de distillation des solvants organiques utilisés comme matières premières

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

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 4626 was developed by Technical Committee ISO/TC 35, *Paints and varnishes*, and was circulated to the member bodies in September 1976.

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

Australia	Iran	Poland
Austria	Israel	Romania
Brazil	Italy	South Africa, Rep. of
Bulgaria	Korea, Rep. of	Sweden
Canada	Mexico	Switzerland
Chile	Netherlands	Turkey
Czechoslovakia	New Zealand	United Kingdom
France	Norway	Yugoslavia
India	Peru	

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Germany
U.S.A.

This International Standard is one of three ISO publications dealing with the determination of distillation characteristics. The two others are :

- ISO/918, *Test method for distillation (distillation yield and distillation range).*
- ISO 3405, *Petroleum products – Determination of distillation characteristics.*

It is recognized that there may be some overlapping between these three documents which were developed in separate technical committees. In the absence of agreement on a general International Standard on the subject, it has however been thought necessary to publish them.

The completion in the future of such a general standard may therefore lead to the amendment or cancellation of this International Standard.

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SAFETY PRECAUTIONS

A Peroxide formation

Certain solvents and chemical intermediates, particularly but not only ethers and unsaturated compounds, may form peroxides during storage. These peroxides may present an explosion hazard when the product is distilled, especially as the dry point is approached.

When peroxide formation is likely, either because of the chemical nature of the product, the type of the product or its length of storage, the material should be analysed for peroxides and, if they are present, appropriate precautions should be taken, such as destruction of the peroxides before distillation, or protection of the operator.

Test for peroxides

Add 0,5 to 1,0 ml of the material to be tested to an equal volume of glacial acetic acid to which has been added about 100 mg of sodium or potassium iodide crystals.

Carry out a blank determination. A comparatively yellow colour indicates a low and a brown colour a high concentration of peroxide in the sample.

B Flammability

Most organic solvents and chemical intermediates are flammable. A fire hazard exists when a distillation is carried out and safety precautions should be taken.

Before starting the test, the flask should be examined for flaws and care should be taken that good seals are obtained where the side arm connects with the condenser and where the thermometer fits into the neck. Some solvents are liable to auto-ignition if distilled. Distillation of these products should be avoided. During the distillation, a suitable catch-pan and shield should be used to contain spilled liquid in the event of accidental breakage of the distillation flask.

Adequate ventilation should be provided to maintain the solvent vapour concentration below the explosive limit in the immediate vicinity of the distillation apparatus, and below the threshold limit value in the general work area.

1 SCOPE AND FIELD OF APPLICATION

1.1 This International Standard specifies a method for determining the boiling range of liquids that boil between 30 and 300 °C at normal pressure, and that are chemically stable and do not corrode the apparatus during the distillation.

1.2 The method is applicable to organic liquids such as hydrocarbons, esters, alcohols, ketones, ethers and similar products.

NOTE — The method differs from that described in ISO/R 918 with respect to the volume of the distillation flask, the type of cooler and the distillation receiver.

The method differs from that specified in ISO 3405 with respect to the volume of the distillation flask and the diameter of the hole in the flask support.