INTERNATIONAL STANDARD 3841

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Petroleum waxes — Determination of melting point (cooling curve)

Cires de pétrole — Détermination du point de fusion (courbe de refroidissement)

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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 3841 was drawn up by Technical Committee ISO/TC 28, *Petroleum products*, and was circulated to the Member Bodies in July 1975.

It has been approved by the Member Bodies of the following countries :

Australia	India	Romania
Austria	Iran	South Africa, Rep. of
Belgium	Ireland	Spain
Brazil	Italy	Sweden
Bulgaria	Japan	Turkey
Canada	Mexico	United Kingdom
Czechoslovakia	Netherlands	U.S.A.
France	Peru	U.S.S.R.
Germany	Poland	
Ghana	Portugal	

No Member Body expressed disapproval of the document.

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Petroleum waxes — Determination of melting point (cooling curve)

1 SCOPE AND FIELD OF APPLICATION

1.1 This International Standard specifies a method for the determination of the melting point (cooling curve) of petroleum wax. It is unsuitable for waxes of the petrolatum group, the microcrystalline waxes, or blends of such waxes with paraffin wax or scale wax.

1.2 Melting point (cooling curve) is a test that is widely used by wax suppliers and consumers. It is particularly applicable to petroleum waxes that are rather highly paraffinic or crystalline in nature. A plateau occurs with specimens containing appreciable amounts of hydrocarbons that crystallize at the same temperature, giving up heat of fusion, thus temporarily retarding the cooling rate. In general, petroleum waxes with large amounts of non-normal hydrocarbons or with amorphous solid forms will not show the plateau.

NOTE — For additional methods used for testing petroleum waxes, see ISO 2207, *Petroleum waxes — Determination of congealing point*, and ISO . . ., *Petroleum waxes — Determination of drop-melting point*.[1] Results may differ, depending on the method used. For pharmaceutical petrolatum, ISO . . . is usually used.

2 PRINCIPLE

A specimen of molten wax in a test tube fitted with a thermometer is placed in an air bath, which in turn is surrounded by a water bath maintained at 16 to 28 °C. As the molten wax cools, periodic readings of its temperature are taken. When solidification of the wax occurs, the rate of temperature change decreases, yielding a plateau in the cooling curve.

3 DEFINITION

For the purpose of this International Standard, the following definition applies.

melting point (cooling curve) of petroleum wax : The temperature at which a melted petroleum wax first shows a specified plateau in its cooling curve when allowed to cool under prescribed conditions.

4 APPARATUS

4.1 Test tube, of soda-lime glass type, of outside diameter 25 mm and length 100 mm. It may be marked with a filling line, 50 mm above the bottom, and a reference line for positioning the bottom of the thermometer at 10 mm above the bottom.

4.2 Air bath, comprising a cylinder of inside diameter 51 mm and depth 113 mm, provided with a tightly fitting cork having a central opening for holding the test tube (4.1) firmly in a vertical position in the centre of the air bath.

4.3 Water bath, comprising a suitable cylindrical vessel, of inside diameter 130 mm and depth 150 mm, provided with a fitted cover equipped to support the air bath (4.2) vertically so that the sides and bottom of the air bath are surrounded by a layer of water about 38 mm thick. The cover shall have an opening through which the bath thermometer may be suspended 20 mm from the outside wall of the water bath.

NOTE — The air bath, water bath, and water bath cover may be made in one assembly as shown in the figure.

Dimensions in millimetres

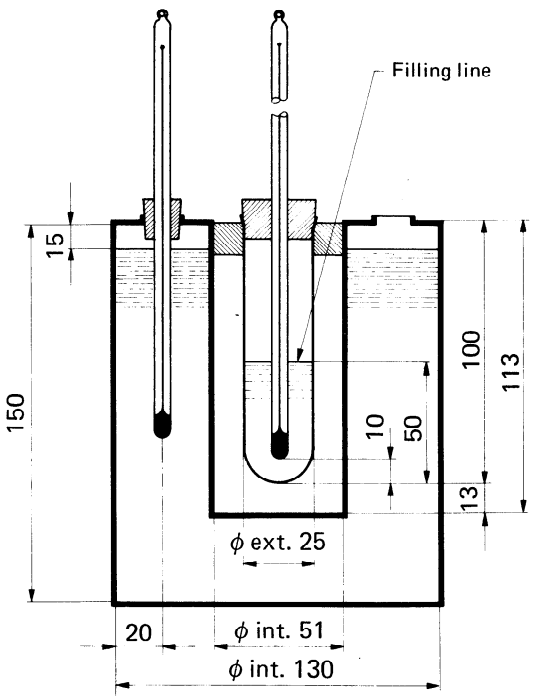

FIGURE — **Apparatus for determination of melting point (cooling curve) of petroleum wax**

1) In preparation.