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British Standard 5088

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# Standard Test Method for Congealing Point of Petroleum Waxes, Including Petrolatum<sup>1</sup>

This standard is issued under the fixed designation D938; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the Department of Defense.*

## 1. Scope\*

1.1 This test method covers determination of the congealing point of petroleum waxes, including petrolatum.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 **WARNING**—Mercury has been designated by many regulatory agencies as a hazardous material that can cause central nervous system, kidney and liver damage. Mercury, or its vapor, may be hazardous to health and corrosive to materials. Caution should be taken when handling mercury and mercury containing products. See the applicable product Material Safety Data Sheet (MSDS) for details and EPA's website—<http://www.epa.gov/mercury/faq.htm>—for additional information. Users should be aware that selling mercury and/or mercury containing products into your state or country may be prohibited by law.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

NOTE 1—This test method is an alternative to Test Method D127. Results obtained are usually lower than the results obtained by Test Method D127 – IP 133, the amount of the deviation varying with the nature of the petroleum wax.

## 2. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.10.0A on Physical/Chemical Properties.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

D127 Test Method for Drop Melting Point of Petroleum Wax, Including Petrolatum  
E1 Specification for ASTM Liquid-in-Glass Thermometers

## 3. Terminology

### 3.1 Definitions:

3.1.1 *congealing point, n*—of petroleum wax, that temperature at which molten petroleum wax, when allowed to cool under prescribed conditions, ceases to flow.

3.1.2 *thermometer, n*—a device for determining temperature using one of a variety of different principles.

3.1.2.1 *Discussion*—A thermometer has two important elements: the temperature sensor, within which some physical change occurs with temperature (for example, the bulb of a liquid-in-glass thermometer, or a thermistor in an electronic thermometer), plus some means of converting this change into a numerical value (for example, the scale on a liquid-in-glass thermometer, or a digital readout in the case of an electronic thermometer).

## 4. Summary of Test Method

4.1 A sample of wax is melted and a droplet is made to adhere to the bulb of a thermometer. Using a prewarmed flask as an air jacket, the droplet on the bulb is allowed to cool at a fixed rate until it congeals. The congealing point is observed as the temperature at which the droplet ceases to flow as the thermometer is turned.

## 5. Significance and Use

5.1 Congealing point is a wax property that is of interest to many petroleum wax consumers. The procedure described here measures the temperature at which a sample being cooled develops a “set” or resistance to flow. At that temperature, the wax may be at or close to the solid state, or it may be semisolid and quite unctuous, depending on the composition of the wax or petrolatum being tested. In the case of petrolatums, congealing property is associated with the formation of a gel structure as the sample cools.

\*A Summary of Changes section appears at the end of this standard