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## Light Mineral Oil

### DEFINITION

Light Mineral Oil is a purified mixture of liquid hydrocarbons obtained from petroleum. It may contain a suitable stabilizer.

### IDENTIFICATION

*Change to read:*

- A. <sup>▲</sup>[SPECTROSCOPIC IDENTIFICATION TESTS \(197\), Infrared Spectroscopy: 197F](#) <sup>▲</sup> (CN 1-MAY-2020)
- B. It meets the requirements in *Specific Tests* for [Viscosity—Capillary Methods \(911\)](#).

### IMPURITIES

- **LIMIT OF POLYCYCLIC AROMATIC HYDROCARBONS**

**Dimethyl sulfoxide:** Use spectrophotometric grade dimethyl sulfoxide.

**n-Hexane:** Use *n*-hexane that has been washed by being shaken previously twice with one-fifth its volume of *Dimethyl sulfoxide*.

**Standard solution:** 7.0 µg/mL of [USP Naphthalene RS](#) in isooctane (2,2,4-trimethylpentane)

**Standard blank:** 2,2,4-Trimethylpentane

**Sample solution:** Transfer 25.0 mL of Light Mineral Oil and 25 mL of *n*-Hexane to a 125-mL separator, and mix. [NOTE—Use no lubricants other than water on the stopcock, or use a separator equipped with a suitable polymeric stopcock.]

Add 5.0 mL of *Dimethyl sulfoxide*, and shake the mixture vigorously for 1 min. Allow to stand until the lower layer is clear, transfer the lower layer to another 125-mL separator, add 2 mL of *n*-Hexane, and shake vigorously. Use the lower layer.

**Sample blank:** *Dimethyl sulfoxide* that has been shaken previously vigorously for 1 min with *n*-Hexane in the ratio of 5 mL of *Dimethyl sulfoxide* to 25 mL of *n*-Hexane

#### Instrumental conditions

(See [Ultraviolet-Visible Spectroscopy \(857\)](#).)

**Mode:** UV

#### Analytical wavelengths

**Standard solution:** 275 nm

**Sample solution:** 260–350 nm

**Cell:** 1 cm

#### Analysis

**Samples:** Standard solution, Standard blank, Sample solution, and Sample blank

**Acceptance criteria:** The absorbance at any wavelength in the specified range of the Sample solution is NMT one-third of the absorbance of the Standard solution.

### SPECIFIC TESTS

- [SPECIFIC GRAVITY \(841\)](#): 0.818–0.880

- [VISCOSITY—CAPILLARY METHODS \(911\)](#): 3.0–34.4 mm<sup>2</sup> · s<sup>-1</sup> for kinematic viscosity, measured with a capillary viscometer at 40 ± 0.1°

- **ACIDITY**

**Sample solution:** Combine 10 mL of Light Mineral Oil and 20 mL of boiling water, shake vigorously for 1 min, and allow to cool. Remove, and filter the aqueous layer.

**Analysis:** To 10 mL of the Sample solution add 0.1 mL of phenolphthalein TS.

**Acceptance criteria:** The solution does not produce a pink color. NMT 1.0 mL of 0.01 N sodium hydroxide is required to produce a pink color.

- [READILY CARBONIZABLE SUBSTANCES TEST \(271\)](#)

**Sample:** 5 mL

**Standard solution:** In a glass-stoppered test tube that previously has been rinsed with hot nitric acid (see [Cleaning Glass Apparatus \(1051\)](#)), mix 3 mL of ferric chloride CS, 1.5 mL of cobaltous chloride CS, and 0.5 mL of cupric sulfate CS then overlaid with 5 mL of Light Mineral Oil.

**Analysis:** Place the Sample in a glass-stoppered test tube that previously has been rinsed with hot nitric acid (see [Cleaning Glass Apparatus \(1051\)](#)), then rinsed with water, and dried. Add 5 mL of sulfuric acid containing 94.5%–94.9% of H<sub>2</sub>SO<sub>4</sub>, and heat in a boiling water bath for 10 min. After the test tube has been in the bath for 30 s, remove it quickly, and, while holding the stopper in place, give three vigorous,

vertical shakes over an amplitude of about 5 in. Repeat every 30 s. Do not keep the test tube out of the bath longer than 3 s for each shaking period. At the end of 10 min from the time when first placed in the water bath, remove the test tube.

**Acceptance criteria:** The oil portion of the *Sample* may turn hazy, but it remains colorless or shows a slight pink or yellow color, and the acid portion of the *Sample* does not become darker than the *Standard solution*.

• **SOLID PARAFFIN**

**Sample:** Light Mineral Oil that has been dried previously in a beaker at 105° for 2 h and cooled to room temperature in a desiccator over silica gel

**Analysis:** Fill a tall, cylindrical, standard oil-sample bottle of colorless glass of 120-mL capacity with the *Sample*. Insert the stopper, and immerse the bottle in a mixture of ice and water for 4 h.

**Acceptance criteria:** The *Sample* is sufficiently clear that a black line 0.5 mm in width, on a white background, held vertically behind the bottle, is clearly visible.

• **LIMIT OF SULFUR COMPOUNDS**

**Solution A:** Saturated solution of lead(II) oxide in sodium hydroxide (200 mg/mL)

**Sample:** 4.0 mL

**Analysis:** Combine the *Sample*, 2 mL of dehydrated alcohol, and 2 drops of *Solution A*, heat at 70° for 10 min with frequent shaking, and cool.

**Acceptance criteria:** No dark brown color develops.

**ADDITIONAL REQUIREMENTS**

• **PACKAGING AND STORAGE:** Preserve in tight, light-resistant containers. No storage requirements specified.

• **LABELING:** Label it to indicate the name and quantity of any substance added as a stabilizer, and label packages intended for direct use by the public to indicate that it is not intended for internal use.

• **USP REFERENCE STANDARDS (11)**

[USP Mineral Oil RS](#)

[USP Naphthalene RS](#)

**Auxiliary Information** - Please [check for your question in the FAQs](#) before contacting USP.

Topic/Question	Contact	Expert Committee
LIGHT MINERAL OIL	<a href="#">Documentary Standards Support</a>	CE2020 Complex Excipients

**Chromatographic Database Information:** [Chromatographic Database](#)

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