

MINERAL OIL (HIGH VISCOSITY)

Prepared at the 44th JECFA (1995), published in FNP 52 Add 3 (1995) superseding specifications for Mineral oil prepared at the 37th JECFA (1990), published in FNP 52 (1992). Metals and arsenic specifications revised at the 63rd JECFA (2004). An ADI of 0-20 mg/kg bw was established at the 44th JECFA (1995).

SYNONYMS

Liquid paraffin, liquid petrolatum, food grade mineral oil, white mineral oil; INS No. 905d

DEFINITION

A mixture of highly refined paraffinic and naphthenic liquid hydrocarbons with boiling point above 350°; obtained from mineral crude oils through various refining steps (e.g. distillation, extraction and crystallization) and subsequent purification by acid and/or catalytic hydrotreatment; may contain antioxidants approved for food use.

C.A.S. number

8012-95-1

DESCRIPTION

Colourless, transparent, oily liquid, free from fluorescence in daylight; odourless

FUNCTIONAL USES

Release agent, lubricant, protective coating

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4)

Insoluble in water, sparingly soluble in ethanol, soluble in ether

Burning

Burns with bright flame and with paraffin-like characteristic smell

PURITY

Viscosity, 100° (Vol. 4)

Not less than 11 cSt

Carbon number at 5% distillation point (Vol. 4)

Not less than 28
The boiling point at the 5% distillation point is higher than 422°.

Average molecular weight (Vol. 4)

Not less than 500

Acidity or alkalinity

To 10 ml of the sample add 20 ml of boiling water and shake vigorously for 1 min. Separate the aqueous layer and filter. To 10 ml of the filtrate, add 0.1 ml of phenolphthalein solution TS. The solution is colourless. Not more than 0.1 ml of 0.1N sodium hydroxide is required to change the colour to pink

Readily carbonizable substances

Place 5 ml of the sample in a glass-stoppered test tube that has previously been rinsed with chromic acid cleaning mixture. Add 5 ml of

sulfuric acid TS, and heat in a boiling water bath for 10 min. After the test tube has been in the bath for 30 sec, remove it quickly, and while holding the stopper in place, give three vigorous vertical shakes over an amplitude of about 10 cm. Repeat every 30 sec. Do not keep the test tube out of the bath longer than 3 sec for each shaking period. At the end of 10 min from the time when first placed in the water bath, remove the test tube. The sample remains unchanged in colour, and the acid does not become darker than standard colour produced by mixing in a similar test tube 3 ml of ferric chloride TSC, 1.5 ml of cobaltous chloride TSC, and 0.5 ml of cupric sulfate TSC, this mixture being overlaid with 5 ml of mineral oil.

Polycyclic aromatic hydrocarbons (Vol. 4)

Passes test

Solid paraffins

Dry a suitable quantity of the substance to be examined by heating at 100° for 2 h and cool in a desiccator over concentrated sulfuric acid. Place in a glass tube with an internal diameter of about 25 mm, close the tube and immerse in a bath of iced water. After 4 h the liquid is sufficiently clear for a black line, 0.5 mm wide against a white background held vertically behind the tube, to be easily seen.

Lead (Vol. 4)

Not more than 1 mg/kg
Determine using an atomic absorption technique appropriate to the specified level. The selection of sample size and method of sample preparation may be based on the principles of the method described in Volume 4, "Instrumental Methods."