

Polyisobutylene

CAS: [9003-27-4]

DESCRIPTION

A synthetic polymer produced by the low-temperature polymerization of isobutylene in liquid ethylene, methyl chloride, or hexane, using an aluminum chloride or boron trifluoride catalyst. After completion of polymerization, volatile components are removed by raising the temperature of the reaction mixture or by kneading in a degassing extruder. Low-molecular-weight grades can be prepared by thermo-mechanical degradation of high-molecular-weight grades. Low-molecular-weight grades are soft and gummy; high-molecular-weight grades are tough and elastic. All grades are light in color, odorless, and tasteless and are soluble in diisobutylene, but insoluble in water.

Functional Use in Foods Masticatory substance in chewing gum base.

REQUIREMENTS

Identification Prepare the sample by dissolving it in hot toluene and evaporating on a potassium bromide plate. The infrared absorption spectrum of the sample exhibits maxima at the same wavelengths as the typical spectrum, as shown in the section on *Infrared Spectra (Series C: Other Substances)*.

Arsenic (as As) Not more than 3 mg/kg.

Heavy Metals (as Pb) Not more than 0.002%.

Lead Not more than 3 mg/kg.

Molecular Weight (Flory) Not less than 37,000.

Volatiles Not more than 0.3%.

TESTS

Arsenic Prepare a *Sample Solution* as directed in the general method under *Chewing Gum Base*, Appendix IV. This solution meets the requirements of the *Arsenic Test*, Appendix IIIB.

Heavy Metals Prepare and test a 1-g sample as directed in *Method II* under the *Heavy Metals Test*, Appendix IIIB, using 20 µg of lead ion (Pb) in the control (*Solution A*).

Lead Prepare a *Sample Solution* as directed in the general method under *Chewing Gum Base*, Appendix IV. This solution meets the requirements of the *Lead Limit Test*, Appendix IIIB, using 10 µg of lead ion (Pb) in the control.

Molecular Weight Determine as directed in the general method, Appendix IV.

Volatiles (**Caution:** To reduce explosion hazard, pass carbon dioxide or nitrogen into the lower part of the drying oven at a rate of about 100 mL/min.) Dry a 5-g sample for 2 h at 105° as directed under *Loss on Drying*, Appendix IIC.

Packaging and Storage Store low-molecular-weight grades in boxes or drums with a release liner or coating; store high-molecular-weight grades wrapped in polyethylene film.