U. S. Department of Commerce
Malcolm Baldrige
Secretary

National Bureau of Standards
Ernest Ambler, Director

National Bureau of Standards

Certificate

Standard Reference Material 388m

Isobutylene–Isoprene (Butyl) Rubber

This Standard Reference Material (SRM) is an isoprene-isobutylene copolymer rubber, IIR Type 218. SRM 388 m is intended for use in checking the performance of Mooney Viscometers when applied to rubber and rubber-like materials.

The SRM is in the form of a bale of the dried rubber weighing approximately 34 kg wrapped in polyethylene film and packaged in cardboard cartons. The SRM was baled from a single lot of the butyl rubber. One-kilogram samples were taken at the start and during the baling of every fifth bale of rubber for subsequent analysis to characterize the SRM. Two Mooney Viscosity measurements were made on each sample at both 100 °C and 125 °C according to the procedures described in ASTM Method D1646-74. Both ML 1+4 and ML 1+8 values of the Mooney Viscosity Number were recorded at each temperature. The certified Mooney Viscosity Number values and associated uncertainties for the SRM are given in Table 1.

Table 1

Temperature	Mooney Viscosity (ML 1+4)*	Mooney Viscosity (ML 1+8)**	Range of Measured Values
100 °C	70.4 ± 0.44		69.0 – 72.0
100		68.2 ± 0.33	67.5 – 69.0
125	50.4 ± 0.30		49.0 – 51.0
125		47.1 ± 0.30	46.0 – 48.0

*ML 1+4 indicates that a large rotor was used; the sample was warmed in the viscometer for one minute before starting the motor; and the readings were taken 4 minutes after starting the motor.

**ML 1+8 indicates that a large rotor was used; the sample was warmed in the viscometer for one minute before starting the motor; and the readings were taken 8 minutes after starting the motor.

NOTE: The certified values represent the means, plus or minus one standard deviation, of 122 measurements at 100 °C and of 132 measurements at 125 °C performed in the laboratories of the National Bureau of Standards. User values different from the mean, but within the reported range of measured values, may be expected and should not be considered to represent a significant difference from the certified Mooney Viscosity Number.

CAUTION: This material should be stored in the dark and away from heat, since exposure to light and heat may affect the certified properties.

This lot of rubber was tested and certified in the Institute for Materials Science and Engineering, Polymers Division, by G.W. Bullman, K.M. Flynn, and G.B. McKenna.

The technical and support aspects involved in the certification and issuance of this Standard Reference Material were coordinated through the Office of Standard Reference Materials by W.P. Reed and R.L. McKenzie.

Gaithersburg, MD 20899
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Stanley D. Rasberry, Chief
Office of Standard Reference Materials