

National Bureau of Standards

Certificate of Analysis

Standard Reference Material 1497

Pigmented Polyethylene Gas Pipe Resin

This Standard Reference Material (SRM) is intended for use in calibration and performance evaluation of instruments used for the determination of Melt Flow Rate according to ASTM Method D1238-82. The SRM is in the form of orange polyethylene pellets.

SRM 1497 is certified for Melt Flow Rate as prescribed by ASTM Method D1238-82, condition 190/2.16 (temperature degrees centigrade/total load in kilograms). The certified value of Melt Flow Rate under this measurement condition is:

$$0.186 \pm 0.011^* \text{ g/10 min}$$

*The uncertainty is the standard deviation for a single measurement.

Supplemental Information

A number of other measurements have been made on the material that may be of value to the user of this SRM and are provided as supplemental information-use only. The supplemental values given below are not certified.

The Melt Flow Rate using ASTM D1238-82, condition 190/5.0 is 0.788 g/10 min with a standard deviation for a single measurement of 0.023 g/10 min. The Melt Flow Rate using condition 190/21.6 is 15.1 g/10 min with a standard deviation for a single measurement of 0.4 g/10 min.

The number of methyl groups corresponding to saturated ends and butyl branches as determined by IR is 0.55 per hundred carbon atoms with an estimated error limit of 0.05 methyl groups per hundred carbon atoms. The number of butyl branches as determined by NMR is 0.46 per hundred backbone carbon atoms with an estimated error limit of 0.04 butyl branches per hundred backbone carbon atoms.

Contributions to the development and certification of this SRM were provided in the following areas by H. Wagner (Size Exclusion Chromatography), J.M. Crissman (liaison with the polymer manufacturer), R.C. Paule (technical statistical assistance), B. Fanconi (IR measurements), and D. Vanderhart (NMR analysis).

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