

Certificate

Standard Reference Material 385b Natural Rubber

Standard Reference Material 385b has the following characteristics when tested by procedure described in the overleaf. The uncertainty limits for the values reflect both variation within the lot of rubber and error of test, and are based on a confidence coefficient of 95 percent.

Characteristics	Units	385b	Limits
Viscometer cure			
Minimum viscosity at 125 °C	ML	37.0	± 1.0
Incipient cure, t_s at 125 °C	min	7.70	± 0.60
Cure index, Δt at 125 °C	min	2.63	± .12
Strain at 5 kg/cm ²			
Cure, 10 min at 140 °C	%	155	± 10
Cure, 20 min at 140 °C	%	107	± 4
Cure, 40 min at 140 °C	%	88	± 3
Stress at 600% elongation			
Cure, 10 min at 140 °C	lb/in ²	415	± 30
Cure, 20 min at 140 °C	lb/in ²	565	± 30
Cure, 40 min at 140 °C	lb/in ²	630	± 30
Stress at failure			
Cure, 10 min at 140 °C	lb/in ²	1980	± 120
Cure, 20 min at 140 °C	lb/in ²	2280	± 120
Cure, 40 min at 140 °C	lb/in ²	2380	± 120
Elongation at failure			
Cure, 10 min at 140 °C	%	865	± 15
Cure, 20 min at 140 °C	%	830	± 15
Cure, 40 min at 140 °C	%	815	± 15

This lot of rubber was evaluated in the National Bureau of Standards Institute for Materials Research, by George E. Decker, George W. Bullman, and Albert M. Brown of the Evaluation Criteria Section, Robert D. Stiehler, Chief.

Washington, D.C. 20234
August 15, 1967

W. Wayne Meinke, Chief
Office of Standard Reference Materials

(Over)

MATERIAL: Standard Reference Material 385b was prepared from a thoroughly blended lot of natural rubber latex. The latex was coagulated in batches the same day as collected. The coagulum was washed and milled the following day and dried for about 9 days. The dried rubber was compressed into bales weighing approximately 34,000 grams, wrapped in polyethylene film, and packaged in multiwall paper bags.

TESTS: Twelve sheets taken at random throughout the lot were tested for the characteristics given in the certificate. Four compounds were mixed from each sheet using the formulation, and mixing procedure in ASTM Designation D 15-66T for Standard Formula No. 1A. These operations were conducted in a room conditioned at 23 °C and 35 percent relative humidity. The sequence of mixing the 48 compounds followed a statistical design. Viscometer cure characteristics of the compound at 125 °C were determined between 2 and 4 hours after mixing according to the procedure described in ASTM Designation D 1646-63 selecting for the cure index the time required to increase from 5 to 35 ML points above the minimum.

Pieces weighing about 53 grams were cut from the remainder of the mixed compound and vulcanized as described in ASTM Designation D 15-66T, Part B, for 10, 20, and 40 min at 140 °C using a four-cavity mold machined directly in the hot plates of the press. Strain at 5 kg/cm² was determined on each vulcanizate by the procedure given in ASTM Designation D 1456-61. Stress at 600 percent elongation, stress at failure and elongation at failure were determined by the procedure given in ASTM Designation D 412-66 using Die C.