



Standard Test Methods for Rubber from Natural Sources—Sampling and Sample Preparation¹

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1. Scope

1.1 These test methods cover a uniform procedure for sampling lots of solid natural rubber. Raw natural rubber generally is marketed in bales ranging in mass from 24 to 115 kg.

1.2 A procedure for determining the acceptability of lots of natural rubber is given. This procedure is based on a variable sampling plan.

1.3 The sample size is based on the assumption of a visually homogeneous material. If obvious heterogeneity exists, the number of samples shall be increased.

1.4 The values stated in SI units are to be regarded as the standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

D 1278 Test Methods for Rubber from Natural Sources—Chemical Analysis²

D 3182 Practice for Rubber—Materials, Equipment, and Procedures for Mixing Standard Compounds and Preparing Standard Vulcanized Sheets²

D 3184 Test Methods for Rubber—Evaluation of NR (Natural Rubber)²

2.2 ANSI Standard:

Z1.9 Sampling Procedures and Tables for Inspection by Variables for Percent Defective³

3. Significance and Use

3.1 These test methods outline a procedure for sampling and

sample preparation of natural rubber. A statistical method for determining a quality index and lot acceptability is given. The sampling plan is optional for quality control or production, but must be used when needed for referee purposes.

4. Sampling

4.1 *Sample Size*—The number of samples to be selected to represent the lot shall be determined by the size of the lot as indicated in Table 1. A sample bale is selected randomly from the lot for each sample required.

NOTE 1—The sampling plan is more efficient for large lots. The risk for the producer and consumer decreases as the sample size increases.

4.2 Removal of Test Portion:

4.2.1 From each sample bale selected, cut one 600 to 1500-g test portion of rubber, depending on the tests to be made. Each test portion is tested separately. Cut the test portion through the entire bale, normal to the bale surfaces of the largest area, without the use of lubricant. Remove outer wrapping sheets, polyethylene film, bale coating, or other extraneous surface material from the test portion. Unless the test portion is to be tested immediately, place it in an airtight container of not more than twice the volume of the test portion, or wrap it tightly in two layers of aluminum foil until tested.

NOTE 2—In testing for volatile matter only, a sample weighing approximately 150 g may be taken as a continuous piece from any part of the bale.

5. Lot Acceptability

5.1 Each property of the lot is evaluated separately. The requirements of these tests are of two types: (1) those having a single limit such as a minimum or maximum and (2) those having double limits, that is, a minimum and a maximum. A quality index is calculated for each property tested, and from this index, an estimate is made of the percent of the lot that is defective. If this percentage does not exceed the allowable values shown in Table 1, the lot is considered acceptable.

5.2 Quality Index Calculations:

5.2.1 For a requirement having a maximum limit, calculate the quality index as follows:

¹ These test methods are under the jurisdiction of ASTM Committee D11 on Rubber and are the direct responsibility of Subcommittee D11.22 on Natural Rubber.

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² *Annual Book of ASTM Standards*, Vol 09.01.

³ Available from American National Standards Institute, 25 W. 43rd St., 4th Floor, New York, NY 10036.