INTERNATIONAL STANDARD 2058

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Raw styrene butadiene rubber (SBR) — Determination of volatile matter

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FOREWORD

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Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 2058 was drawn up by Technical Committee ISO/TC 45, *Rubber and rubber products,* and circulated to the Member Bodies in June 1970.

It has been approved by the Member Bodies of the following countries :

Australia	Hungary	Spain
Austria	India	Sweden
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The Member Body of the following country expressed disapproval of the document on technical grounds :

Germany

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Raw styrene butadiene rubber (SBR) — Determination of volatile matter

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies two methods for the determination in raw solid styrene butadiene rubber of substances, including moisture, which are volatile under the conditions of the determination.

2 REFERENCE

ISO 1796, *Raw rubber — Sample preparation.*

3 PRINCIPLE

3.1 Method A (Hot-mill method)

A test portion is sheeted out on a heated mill until all volatile matter is driven off. The percentage of volatile matter is calculated from the difference in mass before and after milling.

A limitation of the method may arise if the polymer is too tacky to handle on a hot mill without loss of material. If such is the case, Method B should be used.

3.2 Method B (Mill-oven method)

A test portion is sheeted out on a laboratory mill or cut into small pieces and placed in an oven and dried to constant mass. The difference in mass before and after drying is calculated as volatile matter.

NOTE — It is necessary to state which of the two methods is employed because they do not give identical results in all cases.

4 APPARATUS

4.1 Laboratory mill.

4.2 Balance.

4.3 Oven, capable of being controlled at 100 ± 5 °C (for method B).

5 PROCEDURE

5.1 Method A

Weigh, to the nearest 0,1 g, about 450 g of sample prepared according to ISO 1796.

Pass the weighed test portion repeatedly through a laboratory mill, with the rolls of the mill maintained at 100 ± 5 °C and the distance between the rolls being 0,25 ± 0,05 mm.

Do not allow the test portion to band, and take care to prevent any loss of sample. At the end of 4 min, weigh the test portion to the nearest 0,1 g. Pass it through the mill for an additional 2 min and reweigh it. If the masses at the end of the 4 min and 6 min periods are within 0,1 g, calculate the volatile matter; if not, continue passing the test portion through the mill for 2 min periods until the mass remains constant within 0,1 g. Before each weighing, allow the sample to cool to room temperature in a desiccator.

5.2 Method B

Take a sample of rubber (at least 250 g) prepared according to ISO 1796 and sheet it out on a laboratory mill by passing it, not more than twice, between the cold rolls set 0,25 ± 0,05 mm apart.

If this sheeting procedure is impracticable, cut the sample into pieces not larger than 2 mm × 2 mm × 2 mm. If cutting is impossible (for example with crumb rubber) weigh as such.

Weigh, to the nearest 1 mg, two pieces of the sheeted rubber each about 10 g, or 20 g of the cut rubber, on a weighed watch glass. Place in an oven at 100 ± 5 °C for at least 1 h and thereafter until the loss in mass on successive weighings at half-hourly intervals is less than 1 mg. Before each weighing, allow the test portion to cool to room temperature in a desiccator.

6 EXPRESSION OF RESULTS

Calculate the percentage volatile matter as follows :

$$\text{Volatile matter, \% } (m/m) = \frac{m_1 - m_2}{m_1} \times 100$$

where

m_1 is the mass, in grams, of the test portion before drying;

m_2 is the mass, in grams, of the test portion after drying.

7 TEST REPORT

The test report shall include the following information :

a) all details required for full identification of the sample;

b) a reference to this International Standard;

c) the method employed, A or B;

d) the volatile matter content;

e) the date of test.