

INTERNATIONAL STANDARD

ISO
1126

Third edition
1992-03-01

Rubber compounding ingredients — Carbon black — Determination of loss on heating

*Ingrédients de mélange du caoutchouc — Noir de carbone —
Détermination de la perte à la chaleur*



Reference number
ISO 1126:1992(E)

Foreword

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International Standard ISO 1126 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Sub-Committee SC 3, *Raw materials (including latex) for use in the rubber industry*.

This third edition cancels and replaces the second edition (ISO 1126:1985), of which it constitutes a minor revision.

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International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Rubber compounding ingredients — Carbon black — Determination of loss on heating

1 Scope

This International Standard specifies a method for determining the loss on heating of carbon black for use in the rubber industry. This loss on heating is due primarily to loss of moisture, but traces of other volatile materials may also be lost.

This method is not applicable to treated carbon blacks which contain added volatile materials.

2 Principle

A test portion of carbon black is heated for 1 h at a temperature of 105 °C or 125 °C in a weighing bottle. The weighing bottle plus contents are allowed to cool in a desiccator to room temperature and weighed, and the percentage loss on heating calculated.

3 Apparatus

3.1 Oven, preferably gravity-convection type, capable of maintaining a temperature of 105 °C ± 2 °C or 125 °C ± 2 °C.

NOTE 1 The loss on heating of a carbon black may depend upon the test temperature chosen.

3.2 Weighing bottle, squat-form, 30 mm in height and 60 mm in diameter, fitted with a ground-glass stopper.

When larger samples are required for other tests, use an open vessel of dimensions such that the depth of the black is no greater than 10 mm during conditioning.

3.3 Analytical balance, accurate to ± 0,1 mg.

3.4 Desiccator.

4 Procedure

4.1 Precautions

4.1.1 Take the sample of carbon black in a tightly stoppered glass bottle or friction-top can. Allow the closed container to reach ambient temperature before starting the test.

4.1.2 Keep the weighing bottle stoppered when transferring to and from the desiccator, to prevent loss of carbon black due to air currents.

4.2 Determination

4.2.1 Dry the weighing bottle (3.2) and the stopper, with the stopper removed, in the oven (3.1) at a temperature of 105 °C ± 2 °C or 125 °C ± 2 °C for 30 min. Place the bottle and the stopper in the desiccator (3.4) and allow to cool to ambient temperature. Weigh the bottle with stopper to the nearest 0,1 mg.

4.2.2 Weigh to the nearest 0,1 mg about 2 g of carbon black into the weighing bottle.

4.2.3 Place the weighing bottle, test portion and stopper in the oven for 1 h at a temperature of 105 °C ± 2 °C or 125 °C ± 2 °C, with the stopper removed.

4.2.4 Replace the stopper and transfer the bottle and contents to the desiccator. Remove the stopper and allow to cool to ambient temperature. Replace the stopper on the weighing bottle and reweigh to the nearest 0,1 mg.

5 Expression of results

Calculate the loss on heating, expressed as a percentage by mass, using the formula

$$\frac{m_1 - m_2}{m_1 - m_0} \times 100$$

where

- m_0 is the mass, in grams, of the weighing bottle and stopper;
- m_1 is the mass, in grams, of the weighing bottle, stopper and test portion before heating;
- m_2 is the mass, in grams, of the weighing bottle, stopper and test portion after heating.

6 Test report

The test report shall include the following particulars:

- a) a reference to this International Standard;
- b) all details necessary to identify the sample;
- c) the temperature used (105 °C or 125 °C);
- d) the results, and the units in which they have been expressed;
- e) any unusual features noted during the determination;
- f) any operation not included in this International Standard or regarded as optional.

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