International Standard 1126

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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

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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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

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

1 Scope and field of application

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

Heating of a test portion of carbon black for 1 h at a temperature of 105 °C or 125 °C in a weighing bottle.

Cooling of the weighing bottle in a desiccator. After weighing, calculation of the percentage loss on heating.

3 Apparatus

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

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

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

3.4 Desiccator.

4 Procedure

4.1 Dry the weighing bottle (3.2) and the stopper, with the stopper removed, in the oven (3.1) at a temperature of 105 ± 2 °C or 125 ± 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 Weigh to the nearest 0,1 mg about 2 g of carbon black into the weighing bottle.

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

4.4 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.

NOTE — **Precautions :**

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.

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

5 Expression of results

The loss on heating, expressed as a percentage by mass, is given by 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) the reference of the method used;

b) the temperature used (105 °C or 125 °C);

c) the results and the method of expression used;

d) any unusual features noted during the determination;

e) any operation not included in this International Standard, or regarded as optional.