EN 12099 – Polyethylene Piping Materials and Components Determination of Volatile Matter Content – Testing Equipment

Description

3 Apparatus
3.1 Drying oven or equivalent device, capable of maintaining the temperature at (105 ± 2) °C at the position for the cup(s) (see 3.2 and 5.4).
3.2 A cylindrical glass weighing cup, with a diameter of 35 mm capable of containing a test piece (see 4.1), a minimum volume of 50 ml and a corresponding lid.
3.3 A desiccator.
3.4 An analytical balance or equivalent, capable of weighing to the nearest 0,1 mg.

4 Test piece
4.1 Each test piece shall comprise an approximatively 25 g portion of a sample representative of the material before moulding or extrusion, as applicable, or cut in accordance with the referring standard from a cross section of a pipe or fitting.
NOTE: If test samples utilise different sampling weights or are taken from different sources, e.g. raw material granulate or finished product, then there may be a difference in test results obtained. This may depend on e.g. the surface area/mass ratio or the maximum thickness of material. To demonstrate correlation with results for granulate samples determined in accordance with this standard, the preparation of samples from finished product may have to be modified.
4.2 The number of test pieces shall be as specified in the referring standard.

5 Procedure
5.1 Clean and dry a weighing cup and its lid (3.2) until constant weight is achieved and store them in the desiccator (3.3) for at least 0,5 h at room temperature.
5.2 Take the weighing cup and its lid out of the desiccator and determine their combined mass, m to the nearest 0,1 mg. Replace the lid in the desiccator.
5.3 Fill the cup with about 25 g portion of the sample and determine the mass, m,, of the cup, lid and the test portion to the nearest 0,1 mg.
5.4 Put the weighing cup in the drying oven zone which is kept at (105 ± 2) °C (see 3.1).
5.5 After a period of (65 ± 5) min, take the weighing cup out of the drying oven and put the cup in the desiccator for at least 1 h at room temperature.
5.6 Cover the cup with the lid. Weigh the cup, lid and residual material to the nearest 0,1 mg, as mass m2.

6 Calculation
Calculate the volatile material content, mv, of the test portion using the following equation:

$$m_v = \frac{m_1 - m_2}{m_1 - m_0} \times 10^6$$

where:

m_v is the volatile material content in milligrams per kilogramm (mg/kg) at (105 ± 2) °C;

m_0 is the mass in grams of the empty weighing cup and its lid;

m_1 is the mass in grams of the weighing cup and its lid plus the test portion;

m_2 is the mass in grams of the weighing cup and its lid plus the residual material after 1 h at (105 ± 2) °C.

Hot Air Oven

Precise Balance and Density Kit

Category

1. Uncategorized