IEC 60811-507 Electric and Optical Fibre Cables – Test Methods for Non-Metallic Materials –Part 507: Mechanical Tests – Hot Set test for Cross-Linked Materials / Testing Equipment

Description

4.2 Apparatus

The apparatus consists of the following parts:
a) An oven capable of maintaining the temperature and tolerance specified.
b) Grips shall be provided, such that each test piece can be suspended from an upper grip in the oven and weights attached to a lower grip attached to the test piece.
NOTE When testing tubular test pieces, the fixing of the grips should not cause air-tight sealing. This can be achieved by inserting at least on one end a short piece of metal pin, having slightly smaller dimensions than those of the inner side of the test piece.

4.3 Sample and test piece preparation

A sample of the cable or cord, or of the sheath removed from the cable, or samples of core, cut into pieces of sufficient length, shall be taken, preferably from positions close to that from which the samples for the tensile tests without ageing were taken, in accordance with IEC 60811-501.
Test pieces, dumb-bell or tubular, shall be prepared according to IEC 60811-501.
Two test pieces of sheath and of insulation from each core, after they have been prepared and their cross-sectional areas measured, as specified in the test method of IEC 60811-201 and/or IEC 60811-202. Dumb-bell test pieces shall be prepared from the inner part of the sheath and of the insulation after any ridges and/or semi-conducting layers have been removed.
The thickness shall be not less than 0,8 mm and not more than 2,0 mm. If a thickness of 0,8 mm cannot be obtained from the original sample, a minimum thickness of less than 0,8 mm is permitted; however, the greatest possible thickness shall be used.
The central 20 mm for the larger dumb-bells, or 10 mm for the smaller dumb-bells, shall be marked on each test piece.
NOTE A thickness of less than 0,8 mm is only permitted where the specified thickness in the applicable cable standard is less than 0,8 mm.

4.4 Procedure

Test conditions are specified in the relevant cable standard.
NOTE 1 In the absence of any requirement in the relevant cable standard, Annex A of this standard gives a recommendation for test temperature and requirements.
The test pieces shall be suspended in the oven and the weights attached to the lower grip to exert a force of the value specified for the material in the relevant cable standard. This process shall be carried out as quickly as possible so that the oven door is open for the minimum time.
After the oven has regained its temperature, the test pieces shall be held in the oven for a further 10 min. The distance between the marker lines shall then be measured so that the elongation can be

calculated. If the oven does not have a window and the oven door has to be opened to make the measurement, the measurement shall be made not more than 30 s after opening the door.
In case of dispute, the test shall be carried out in an oven with a window and the measurement made without opening the door.
The tensile force shall then be removed from the test pieces (by cutting the test pieces at the lower grip), and the test pieces left to recover in the oven. The test pieces shall be held in the oven for 5 min or until the specified temperature is regained, whichever is the longer.

The test pieces shall then be removed from the oven and allowed to cool slowly to ambient temperature, after which the distance between the marker lines shall be measured again.
NOTE 2 Adequate precautions should be taken to avoid physical danger from the handling of the heated grips, weights and test pieces.

4.5 Expression of the results

The mean value of the elongation, after 10 min at the specified temperature, with the weight attached, shall not exceed the value specified in the standard for the type of cable.
The mean value of the distance between the marker lines, after removing the test piece from the oven and allowing it to cool, shall not have increased from the value before inserting the test piece in the oven by more than the percentage specified in the relevant cable standard. If one of the two samples fails the test, then two more samples shall be tested. If both pass the test, the sample is deemed to have passed the test.

Hot Set Tester According to IEC 60811-507

- Digital temperature controller
- Digital timer included
- SS304 internal cabin
- Powder paint coated outer body
- Air circulation inside cabin
- Weights as per customer request
- Fine tune of weigth using metal balls
- Automatic timer stop in case of sample failure
- Temperature resolution 0.1C
- Number of stations as per customer request (Basic delivery is one station)

Category

1. Equipment for Standards
2. Standards