



IPC-TM-650 TEST METHODS MANUAL

1.0 Scope This method is designed to determine the resin content percent of prepreg which is reinforced with inorganic fabric, by removal of the resin from the reinforcement using a burn-off step.

2.0 Applicable Documents None.

3.0 Test Specimens

3.1 Size Specimens shall be approximately 102 mm x 102 mm [4.0 in. x 4.0 in.]. If the reinforcement is a continuous fiber woven fabric, the sides shall be cut on a bias to the orientation of the fabric.

3.2 Quantity and Sampling Unless otherwise specified, three specimens shall be taken equally spaced across the width (web) of a roll or from different locations in a predetermined quantity of paneled prepreg, such as an inspection lot.

4.0 Apparatus or Material

4.1 Analytical Balance Analytical balance capable of weighing to the nearest milligram [0.001 gram].

4.2 Muffle Furnace Muffle furnace capable of maintaining 550 ± 50°C [1022 ± 90°F].

4.3 Crucible Crucible of sufficient size and type to hold the specimen when placed in a muffle furnace.

4.4 Cutting Apparatus Shears or other equipment capable of cutting specimens to the specified size.

4.5 Desiccator Desiccation chamber capable of maintaining an atmosphere less than 30% R.H., at 23°C [73°F].

5.0 Procedure

5.1 Specimen Preparation

5.1.1 Cut the specimens to the specified size.

5.1.2 Unless the prepreg is tested within 10 minutes of its manufacture, the specimens shall be desiccated for a minimum of 4 hours. For referee testing, the specimens shall be desiccated.

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5.2 Measurement

5.2.1 Each specimen shall be weighed in a previously weighed crucible to the nearest milligram.

5.2.2 Place the crucible containing the specimen in the muffle furnace maintained at 550 ± 50°C [1022 ± 90°F] for 5 minutes, minimum.

5.2.3 Remove the crucible with contents from the furnace and place in the desiccator until cooled to room temperature.

Note: If the contents of the crucible shows evidence of glass fusion, discard the specimen and repeat the test with a new specimen, except lower the temperature of the muffle furnace by 50°C [122°F]. If the contents show evidence of incomplete combustion of the resin, increase the temperature of the furnace or extend the time of combustion. In any case, the residual glass cloth, after combustion, must be completely free of resin residue, and show no evidence of glass fusion.

5.2.4 Weigh the crucible with contents to the nearest milligram.

5.2 Calculation The resin content of the prepreg is calculated as follows:

$$\text{Resin content (\%)} = \frac{\text{Loss of Weight of Specimen} \times 100}{\text{Original Weight of Specimen}}$$

5.3 Report The results shall be recorded in a report indicating resin content percent for each specimen and the average of all specimens of the same materials.

6.0 Notes

6.1 Reinforcements used for prepreg covered by this test method may be woven or nonwoven, and continuous or non-continuous fibers, any of which are referred to as fabrics.

6.2 Desiccator Conditions The Test Methods Task Group determined that a great majority of test laboratories are unable to consistently hold the Relative Humidity in a desiccator to less than 20%. Based on data from participating company lab management, the lowest practically feasible RH for use with the affected IPC Test Methods is 30% maximum.