The Institute for Interconnecting and Packaging Electronic Circuits
2215 Sanders Road • Northbrook, IL 60062-6135

IPC-TM-650
TEST METHODS MANUAL

Number	
2.3.34.1	
Subject	
Percentage of Flux on/in Flux-coated and/or Flux-Cored Solder	
Date	Revision
1/95	**B**
Originating Task Group	
Solder Alloy Task Group (5-24c)	

1.0 Scope This test method provides a measurement of the flux percentage on flux-coated and/or in flux-cored solder.

2.0

J-STD-006 Requirements and Test Methods for Electronic Grade Solder Alloys and Fluxed and Non-fluxed Solid Solders for Electronic Soldering Applications

3.0 Test Specimen Use approximately 200 grams of flux-coated and/or flux-cored solder. For fluxes whose flux percentage is expected to be 1% or more, the test specimen may be approximately 100 grams. For fluxes whose flux percentage is expected to be 2% or more, the test specimen may be approximately 50 grams.

4.0 Apparatus

4.1 One hot plate capable of being set to 50+5/-0°C above the liquidus temperature of the solder sample alloy.

4.2 One suitably sized pyrex or equivalent beaker.

5.0 Test Procedure

5.1 Preparation for Test

5.1.1 Determine the liquidus temperature of the solder specimen alloy from J-STD-006.

5.1.2 Weight solder sample to the nearest 0.01 gram (W1).

5.1.3 Carefully pack the solder sample as tightly as possible in the bottom of the beaker. Weigh the beaker and solder sample to the nearest 0.01 gram (W2).

5.2 Test

5.2.1 Preheat the hot plate to 50+5/-0°C above the liquidus temperature of the solder specimen alloy.

5.2.2 Place the beaker with the solder sample on the hot plate. Remove the beaker as soon as all of the solder melts and allow it to cool at room temperature for about 30 minutes.

5.2.3 Using reagent grade 2-propanol, or other suitable solvent recommended by the solder manufacturer, slight agitation, and gentle heat, thoroughly extract the flux residues from the beaker. Decant the extraction solution through coarse filter paper taking care that no solder escapes the beaker. Repeat the extraction procedure as necessary to remove all traces of flux residue. Evaporate the remaining solvent from the beaker by warming under a gentle stream of air until the residue in the beaker is completely dry.

5.2.4 Weigh the beaker and melted solder metal to the nearest 0.01 gram (W3).

5.2.5 Repeat the flux residue extraction procedure until a constant final weight W3 is obtained.

5.3 Evaluation Calculate the flux percentage using the following formula.

$$\%F = 100 \times (W3 - W2) / W1$$

6.0 Safety Observe all approximate safety precautions. Consult MSDS sheets for safety precautions for chemicals involved in this test method.