



**Summary of Substantive Changes
between the 2010 and the 2016 editions of
ASTM B813, Standard Specification for Liquid and Paste Fluxes for Soldering of
Copper and Copper Alloy Tube**

Presented to the IAPMO Standards Review Committee on March 13, 2017

General: The changes to this standard should not have an impact on currently listed products. The substantial changes are:

- Expanded the scope of the standard to include tinning flux (maximum 10%) as follows:

3 General Requirements:

3.10 In the case of Tinning flux, if the unalloyed flux meets the requirements of this specification, then the Tinning flux shall be deemed to meet the requirements of this specification.

4.2 Definitions:

4.2.2 tinning flux, n—a flux as described in 4.2.1, containing tin alloy powder at a maximum level of 10 % by weight of flux.

11 Specimen Preparation:

11.2 Standard Quantity of Flux—A standard quantity of flux shall be 0.003 mL as measured by a precision pipet or other volumetric measuring devices with equivalent precision.

11.2.1 Standard Quantity of Tinning Flux—A standard quantity of Tinning flux shall be the same as described in 11.2, with a maximum of 10 % tinning powder added to it.

11.4 Resistivity Test Specimen—The resistivity test specimen is the condition of the standard test sheet on which have been deposited standard quantities of flux and solder metal before they are placed in the oven. In the case of Tinning flux, specimen should be prepared without tinning powder added to the base flux.

13.3 Spreading Factor Procedure:

13.3.1 The spreading factor test specimen is the condition of the standard test sheet with a standard quantity of flux having been heated to 275°C for 30 s in the oven. Immediately afterwards, a standard quantity of solder metal is placed over the liquid flux and the test specimen is replaced in the oven. In the case of Tinning flux, specimen should be prepared without tinning powder added to the base flux.

14 Aggressiveness Test:

14.1 Scope—The aggressiveness of the flux is determined by means of a resistivity test by measuring the resistivity in V cm of an aqueous solution of the flux residue. In the case of Tinning flux, specimen should



be prepared without tinning powder added to the base flux. The conductivity cell to be used shall be kept immersed in distilled water at ambient temperature for a minimum of 24 h before use.

16 Resistivity Test—No Solder (see 6.2)

16.1 Procedure—Prepare seven watch glasses and seven graduated beakers as indicated in 15.1.1. For determination of the resistivity, five standard test sheets are used. The test sheets are heated for 2 min to 150°C after application of a standard quantity of liquid flux. In the case of Tinning flux, specimen should be prepared without tinning powder added to the base flux. After cooling, the test sheets are placed in separate beakers, filled with 75-mL distilled water. The test sheets are then placed with the surface down. The test then proceeds in accordance with 15.1.2.

17. Corrosiveness Test

17.2 Procedure:

17.2.1 Remove the test sheet from the ethanol, allow to dry, and apply five times the standard quantity of flux (in accordance with 11.2). In the case of Tinning flux, specimen should be prepared without tinning powder added to the base flux. Heat the test sheet with the flux in an oven at 275°C for 3 min. From the moment the test sheet is taken out of the oven, no cleaning is permitted. Place the sheet in a desiccator on a stand over the water level. The flux residue must be removed as follows:

19. Residue Flushing Test

19.1 Procedure:

19.1.1 On every copper sheet apply a quantity of 5.0 g of flux. In the case of Tinning flux, specimen should be prepared without tinning powder added to the base flux. Heat the sheets to 300°C within 30 s, as measured by a temperature indicator.