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Number	
2.3.33	
Subject	
Presence of Halides in Flux, Silver Chromate Method	
Date	Revision
06/04	**D**
Originating Task Group	
Flux Specifications Task Group (5-24a)	

IPC-TM-650
TEST METHODS MANUAL

1 Scope This qualitative test method is designed to determine the presence of chlorides and bromides in soldering flux by visual examination after placement on test paper.

2 Applicable Documents

IPC J-STD-004 Requirements for Soldering Fluxes

3 Test Specimen A minimum of 10 ml of liquid flux, a representative container of solder paste, reflowed solder paste flux, extracted solder preform flux or extracted cored wire flux. The reflow/extraction process should be carried out in accordance with J-STD-004.

4 Apparatus and Reagents

4.1 Six pieces of silver chromate test paper 51 mm x 51 mm.

4.2 250 ml of reagent grade 2-propanol.

4.3 Six glass microscope slides.

4.4 Spatula.

5 Procedures

5.1 Preparation

5.1.1 The silver chromate paper is extremely light sensitive and must be stored in a closed container away from light until used for testing.

5.1.2 To avoid contamination, the paper must be handled with forceps and must never be touched with bare hands.

5.2 Test for Liquid Flux or Flux Extract Solution

5.2.1 Place one drop of test flux or flux extract (approximately 0.05 ml) on each piece of silver chromate test paper. Allow the droplet to remain on each test paper for a minimum of 15 seconds.

5.2.2 After the 15 seconds, immediately immerse each test paper in clean 2-propanol to remove the residual organic materials.

5.2.3 Allow each test paper to dry and examine for color change.

5.3 Test for Paste Flux or Solder Paste Flux as Obtained from the Supplier

5.3.1 Clean six glass microscope slides with 2-propanol and air dry.

5.3.2 Moisten each piece of silver chromate reagent paper with deionized water.

5.3.3 Apply a wet paper to each glass slide and remove the excess water with blotting paper.

5.3.4 Using a spatula, apply a thin coating of the paste flux or solder paste directly onto each moist reagent paper.

5.3.5 Allow the paste flux or solder paste to remain in contact with the paper for 15 seconds, then remove the flux with 2-propanol or other appropriate solvent without disturbing the paper.

5.3.6 Allow each test paper to dry and examine for color change.

5.4 Evaluation Carefully examine each test sheet for possible color change. A change to off-white or yellow-white indicates the presence of chlorides or bromides (see Figure 1).

5.4.1 Interferences A number of chemicals besides free halides may cause test failures. (Representative examples are, but are not limited to, amines, cyanides, and isocyanates.)

5.4.2 Certain acidic solutions may react with the reagent paper to produce a color change similar to that obtained with chlorides and bromides. When a color change is observed, it is advisable to check the acidity of the affected area by means of a pH indicating paper. If pH values of less than 3 are obtained, the presence of chlorides and bromides should be verified by other analytical means.

5.4.3 It is possible that the metal present in a solder paste sample may leave a white residue that is difficult to distinguish

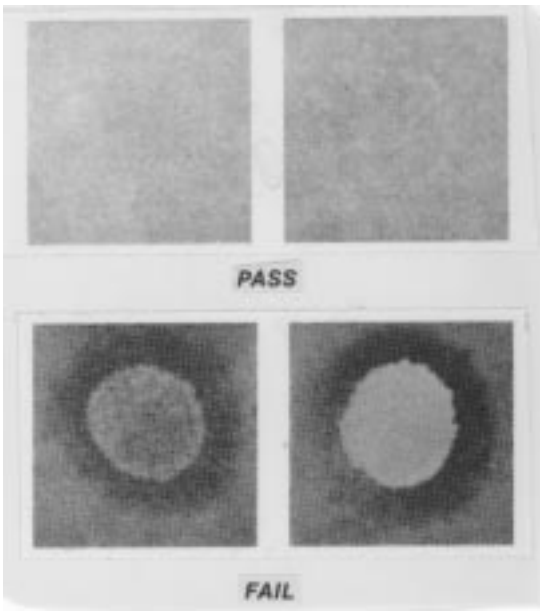

Figure 1 Chlorides and/or Bromides Test Results

from a true color change. A retest on the representative paste flux or flux extracted from the paste is advised.

6 Notes

6.1 Safety Observe all appropriate precautions on MSDS for chemicals involved in this test method.