

METRIC

MIL-F-14256E(ER)  
AMENDMENT 1  
21 July 1990

MILITARY SPECIFICATION

FLUX, SOLDERING, LIQUID (ROSIN BASE)

"This amendment forms a part of MIL-F-14256E (ER), dated 1 June 1989, and is approved for use by the Department of the Army. It is available for use by all Departments and Agencies of the Department of Defense."

PAGE 1

Title: Change title to read:

FLUX, SOLDERING, LIQUID, PASTE AND SOLDER PASTE FLUX (ROSIN BASE)  
(FOR ELECTRONIC/ELECTRICAL USE)

PAGE 1

1.1 Scope. Line 1: Add "and also paste and solder paste" after liquid and before Fluxes.

PAGE 1

Add new paragraph 1.3:

1.3 Definitions. Definitions of terms for non liquid fluxes:

Paste Flux. A flux formulated in the form of a paste for special applications, not be be confused with solder paste or solder paste flux.

Solder-Paste Flux. Solder-Paste Flux is a solder paste without solder particles.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, US Army Laboratory Command, Attn: SLCET-RS, Fort Monmouth, NJ 07703-5000, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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PAGE 2

Paragraphs 2.1.1 and 2.1.2, under Application for copies:

Change the address for Naval Publications and Forms Center to: (Naval Publications and Forms Center, Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, Pa. 19111-5094.)

PAGE 3

Paragraph 2.2, under THE INSTITUTE FOR INTERCONNECTING AND PACKAGING, ETC.,  
Add the following document:

IPC-SP-819 - General Requirements for Electronics Grade Solder Paste.

PAGE 3

3.2.1.1: Add the following to paragraph:

..... as specified in para 4.7.7. When diluted for additional testing (see 4.5.1, 4.6.1.4.1 and 4.6.2.1.1), Type R paste and solder paste flux shall meet all requirements for type R liquid flux. For paste and solder-paste fluxes, neutral rheological control additives necessary to achieve required viscosity are permitted.

PAGE 4

3.2.1.2: Add the following to paragraph:

..... as specified in para 4.7.7. When diluted for additional testing (see 4.5.1, 4.6.1.4.1 and 4.6.2.1.1) type RMA paste and solder paste flux shall meet all requirements for type RMA liquid flux.

PAGE 4

3.2.1.3: Add the following to paragraph:

..... as specified in para 4.7.7. When diluted for additional testing (see 4.5.1, 4.6.1.4.1 and 4.6.2.1.1) Type RA paste and solder paste flux shall meet all requirements for type RA liquid flux.

PAGE 5

Add new paragraph 3.2.5:

3.2.5 Paste and Solder Paste flux viscosity. Viscosity shall be selected to suit the application based on agreement between the buyer and the seller. When not otherwise specified in the applicable contract or purchase order (see 6.2 and 6.1.5), paste and solder paste flux shall have a viscosity of 1,260,000 to 1,540,000 centipoise. The viscosity shall be determined as specified in 4.7.7.

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PAGE 5

3.3.4: Delete and substitute:

3.3.4 Solids Content Process Control Test (see 4.7.6). There is no specific requirement regarding solids content; however, a minimum of 51.0% of the nonvolatile content shall be rosin (see 3.2.2).

PAGE 7

4.5.1: Delete and substitute:

4.5.1 Sample size. A sample of 0.47 L of liquid flux shall be furnished in a sealed container and subjected to qualification inspections. A sample of approximately 0.20 L of paste or solder paste flux shall be furnished in a sealed container for viscosity testing. An additional sample of 0.20 L of paste or solder paste flux shall be furnished in a separate sealed container. This sample shall be subjected to all qualification testing with the exception of viscosity. Some tests such as: Resistivity of Water Extract (para 4.7.2), Test for Flourides (para 4.7.3.2), Halide Content (para 4.7.3.3) will require dissolving paste or solder paste flux in Isopropyl alcohol (IPA). For these tests, a 35% solution, by weight, may be used. The 35% dilution shall be factored into the test result(s) to yield an analysis based on 100% of the original, pre-dissolved, sample. Samples shall remain sealed, except for purposes of testing to minimize loss of volatiles from evaporation.

PAGE 9

TABLE IV, under "Halide content", add the following line:

Viscosity	3.2.5	4.7.7
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PAGE 10

4.6.1.4.1: Delete and substitute:

4.6.1.4.1 Sampling plan. Sampling shall be in accordance with EIA-557. A sample of 120 mL of liquid flux, or samples of 45.60 g of paste or solder paste flux, diluted to 120 mL using a non-halogenated solvent, and approximately 0.20 L of paste flux, shall be taken from the first batch and thereafter from one batch in every 50 batches, or once each month, whichever is less frequent.

PAGE 10

4.6.2.1.1: Delete and substitute:

4.6.2.1.1 Sampling plan. Sampling shall be in accordance with EIA-557. A sample of 120 mL of liquid flux, or two (2) samples of approximately 0.20 L of

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paste or solder paste flux, shall be taken from the first batch and thereafter from one batch in every 50 batches, or once each month, whichever is less frequent.

PAGE 12

4.7.2: Last sentence, correct misspelled word "specific".

PAGE 14

Add new paragraph 4.7.6.1:

4.7.6.1 Estimation of equivalent sample size for test methods. For tests/evaluations of paste and/or solder paste fluxes (except where dilution is necessary (see 4.5.1) where a drop of liquid is indicated, a dab or smear of similar volume may be substituted. When 0.5 mL, or similar amount is indicated, 0.5 g or similar approximate gram to mL volume may be substituted to achieve the intent of the test.

PAGE 14

Add new paragraph 4.7.7.

4.7.7 Paste flux viscosity (see 3.2.5). The viscosity of paste shall be determined using the procedure specified in IPC-SP-819, paragraphs 4.5 through 4.5.3.3.

PAGE 16

5.3: Change the first sentence to read: The fluxes covered by this specification are flammable and have other hazardous characteristics (see para 3.5 and 3.6).

PAGE 16

6.1.4: In last sentence, correct misspelled words "corrosion" and "electrolytic".

PAGE 16

Add new paragraph 6.1.5.

6.1.5 Paste and solder paste flux viscosity. Because the viscosity that is needed for a particular paste flux varies widely depending on a number of variables, electronic assemblers will have to customize the viscosity requirement to their manufacturing process. Fine dot dispensing and pin transfer application methods typically need viscosities in the range of 200,000 to 450,000 centipoise. Larger dot dispensing and screen printing application methods typically need viscosities in the range of 400,000 to 950,000 centipoise. Stenciling application methods typically need viscosities in the range of 900,000 to 1,500,000 centipoise.

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PAGE 17

6.2 Insert new subparagraph letter "d." to read:

d. Paste flux viscosity required (see 3.2.5 and 6.1.5).

Delete and change subsequent subparagraph letters to "e", "f", "g" and "h".

PAGE 18

Under Review Activies: Change DoD to read DLA

Custodian:

Army - ER

Navy - EC

Air Force - 11

Preparing activity:

Army - ER

Review Activities:

Army - MI

Navy - SH

Air Force - 84, 99

DLA - GS, IP

Project: 3439-0750

User Activities:

Navy - AS, MC, OS, YD

Air Force - 80

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**I RECOMMEND A CHANGE:**

1. DOCUMENT NUMBER

MIL-F-14256E Amendment 1

2. DOCUMENT DATE (YYMMDD)

21 July 1990

3. DOCUMENT TITLE

Flux, Soldering, Liquid (Rosin Base)

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)

b. ORGANIZATION

c. ADDRESS (Include Zip Code)

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8. PREPARING ACTIVITY

a. NAME

US Army LABCOM (ER)

b. TELEPHONE (Include Area Code)

(1) Commercial

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(2) AUTOVON / DSN

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