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MILITARY STANDARD

PROCESS FOR SOLDERING ACCIDENT DOSIMETER TO FILM BADGE HOLDER FOR RADIAC DETECTING ELEMENT

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DEPARTMENT OF DEFENSE
WASHINGTON, D.C. 20360

PROCESS FOR SOLDERING ACCIDENT DOSIMETER TO FILM BADGE HOLDER FOR RADIAC DETECTING ELEMENT

MIL-STD-1372A(EC)

1. This standard is approved for use by the Naval Electronic Systems Command.

2. Recommended corrections, additions, or deletions should be addressed to the Commander, Naval Electronic Systems Command (0517), Washington, D.C. 20360.

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FOREWORD

The purpose of this standard is to establish the process for soldering the accident Dosimeter (figure 1) to the Film Badge Type Holder (figure 2).

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1. SCOPE

1.1 Scope. This standard establishes the process for soldering the Accident Dosimeter (figure 1) to the Film Badge Type Holder (figure 2).

1.2 Purpose. The purpose of this Standard is to establish a soldering process for attaching the Accident Dosimeter to the Film Badge Type Holder.

2. REFERENCED DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this standard to the extent specified herein:

SPECIFICATIONS

FEDERAL

O-F-506 - Flux, Soldering: Paste and Liquid
O-T-634 - Trichloroethylene (technical grade)
QQ-S-571 - Solder, Tin-Alloy, and Lead Alloy
GGG-P-00480 - Pliers, Retaining Ring

MILITARY

MIL-S-6872 - Soldering Process, General Specification for
MIL-H-36364 - Holder, Radiac Detecting Element, Film Badge Type

STANDARDS

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes

(Copies of specifications, standards, drawings, and other publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

3. DEFINITIONS

(NOT APPLICABLE)

4. GENERAL REQUIREMENTS

4.1 Composition. Parts required in the soldering process covered by this standard are as follows:

(a) Film Badge Holder for Radiac Detecting Element, FSN 6665-299-9825 as covered by MIL-H-36364
(b) Accident Dosimeter Assembly as shown in figure 1
(c) Plate, Identification, Metal Foil, Adhesive Backed

4.2 Qualification of personnel. It is recommended that only trained and qualified personnel be permitted to solder and inspect the items to be produced in accordance with this standard. The soldering of stainless steel parts is considerably more difficult than that associated with ordinary steels and copper alloys and requires a higher degree of skill to produce a quality product.

5. DETAILED REQUIREMENTS

5.1 Materials. Materials required in the soldering process covered by this standard are as follows:

(a) Solder, in accordance with QQ-S-571, composition SN 96, form W (1/16 - 1/8 diameter), type S
(b) Flux, in accordance with O-F-506, type 1, form B
(c) Trichloroethylene (technical grade), in accordance with O-T-634, type II.
(d) Emery cloth (grades 80 to 120)
* (e) Epoxy type adhesive GSA Stock No. 9Q-8040-061-8303, or equivalent.

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5.2 Tools and equipment. Tools and equipment required to perform the process covered by this standard are as follows:

(a) Pliers, Retaining Ring, (FSN 9Q-5120-293-0048), GGG-P-00480, Type 1, Class 1, Style A, size 1.

(b) Vapor degreaser for use with solvents of the trichloroethylene type.
(c) Suitable holding jig or fixture to hold outer case of film badge holder and outer metal tubular housing of the nuclear accident dosimeter assembly in correct orientation during soldering process. The jig or fixture shall be designed to permit expansion and contraction during heating and cooling to prevent distortion of parts.
(d) Suitable electric soldering iron or gun of approximately 200-300 watt capacity.
(e) Suitable cleaning materials such as brushes, tip cleaners, solvents, and so forth.
(f) Pliers - long nose non-serrated (size as suitable for job).
(g) Safety glasses with side shields.
(h) Magnifying glass (4x and 10x).

5.3 Workmanship. Soldered assemblies shall be processed in a careful and workmanlike manner. The soldering shall be free from scratches, roughness, sharp edges, dullness, looseness, blistering, foreign matter and other evidences of poor workmanship that will render the assemblies unsuitable for the purposes intended. Defects in quality of soldering are detailed in MIL-S-6872.

5.4 Stepwise procedure. A stepwise procedure for attachment of the accident dosimeter to the film badge holder is as follows:

(a) Disassemble the film badge holder. Identify the inner and outer case pieces of each holder by tags
* or other suitable means so that these same pieces may be reassembled after completion of the process. Remove and destroy metal foil label on DT-518/PD.
(b) Unpackage and disassemble the accident dosimeter assembly shown in Figure 1 by removing the "C" rings so that the inner plastic capsule may be removed from the corrosion-resistant steel cylinder. The special pliers of 5.2 (a) are used to remove the "C" rings in the ends of the assembly. Store the removed plastic capsules and "C" rings for later reassembly.
(c) Clean the outer case of the film badge holder and the metal tubular housing of the accident dosimeter assembly using a suitable vapor degreaser (5.2 (b)) and a solvent of the trichloroethylene type(5.1c)
(d) Using the emery cloth of 5.1 (d), abrade the end surface of the outer case of the film badge holder and a longitudinal strip on the outside diameter of the tubular metal housing of the dosimeter assembly for the purpose of removing metal oxides from the areas of the parts to be soldered.
(e) Hold the outer case of the film badge holder and the metal tubular housing of the dosimeter assembly in the correct position for soldering by the use of a suitable jig or fixture. Positional location of the metal tubular housing relative to the outer case of the film badge holder is shown in Figure 2. Jigs or fixtures used to hold parts in position for soldering shall be designed to allow expansion of the parts during heating and contraction during cooling.
(f) Using solder in accordance with QQ-S-571 (see 5.1(a)), flux in accordance with O-F-506 (see 5.1(b)), and a suitable 200W-300W electric soldering iron or gun in accordance with 5.2(d), join the outer case of the film badge holder and the metal tubing housing of the dosimeter assembly by soldering in accordance with MIL-S-6872, Type I. Avoid excessive heat and solder which might cause distortion or coating of metal parts.
(g) After completion of soldering, remove flux residue on the parts in accordance with MIL-S-6872.
(h) Dry the soldered assembly and visually inspect the soldered joint for quality and workmanship. The soldered joint shall conform to the requirements of MIL-S-6872.
(i) Reassemble plastic dosimeter cartridge into the metal tubular dosimeter housing with orientation
* as shown in Figure 3 and secure in position with "C" Rings using the special pliers of 5.2(a) for the insertion of the "C" rings. Place a small drop of epoxy type adhesive, GSA Stock No. 9Q-8040-061-8303, or equivalent, between the ends of the "C" rings. The adhesive shall cover the holes at the ends of the "C" rings to prevent easy insertion of retaining ring pliers. Care shall be taken to prevent any of the epoxy from getting on the plastic capsule.

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1/ (j) Reassemble the inner case into the outer case of the film badge holder making sure that the two mating pieces are the same that were disassembled in step 5.4 (a). This completes the procedure for attachment of the dosimeter to the film badge holder. Upon assembly of the specified film pack into the film badge holder the unit is ready for use.

5.5 Sampling. Sampling for inspection shall be conducted in accordance with MIL-STD-105, Inspection Level S-4, AQL 2.5 percent.

5.6 Inspection. The film badge holder and dosimeter assembly shall be inspected to determine compliance with all requirements contained in this standard.

5.7 Classification of characteristics. Inspections shall be conducted in accordance with the following classification of characteristics. These inspections do not relieve the contractor of responsibility for compliance with all the requirements of this standard.

CATEGORIES AND CHARACTERISTICS:

MAJOR

1/101	Solder shall conform to 5.1 (a).
1/102	Flux shall conform to 5.1 (b).
1/103	Solder joint and metal tubular housing of dosimeter shall be free of excess solder.
1/104	Metal Housing of the dosimeter shall be firmly attached to the film badge holder.
1/105	Solder joint shall have a smooth, bright, non-crystalline metallic appearance with good adherence. (A cold solder joint shall be cause for rejection.)
1/106	Outer case of film badge holder shall not be overheated in soldering operation (over heating indicated by discoloration of outer case).
1/107	Solder joint shall be free of cracks, rough or sharp projections.
1/108	External diameter of metal tubular housing of dosimeter shall be flush with front surface of the outer case of the film badge holder.
1/109	Metal tubular housing of dosimeter assembly shall be longitudinally centered on end of film badge holder.
1/110	After soldering, plastic dosimeter cartridge shall freely assemble in metal tubular housing of dosimeter.
1/111	After soldering, inner case of film badge holder shall slide into outer case of film badge holder to form a secure case and shall be removable from outer case with finger pressure.
2/112	Plastic dosimeter cartridge shall be correctly oriented in metal tubular housing of dosimeter.
113	Plastic dosimeter cartridge shall be secured in place in metal tubular housing of dosimeter by "C" Rings.

1/Indicated inspection shall be made prior to completion of assembly.
2/Indicated inspection shall be made during assembly.

6. NOTES

6.1 Changes from previous issue. The outside margins of this document have been marked "*" to indicate where changes (deletions, additions, and so forth) from the previous issue have been made. This has been done as a convenience only and the government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content as written irrespective of the marginal notations and relationship to the last previous issue.

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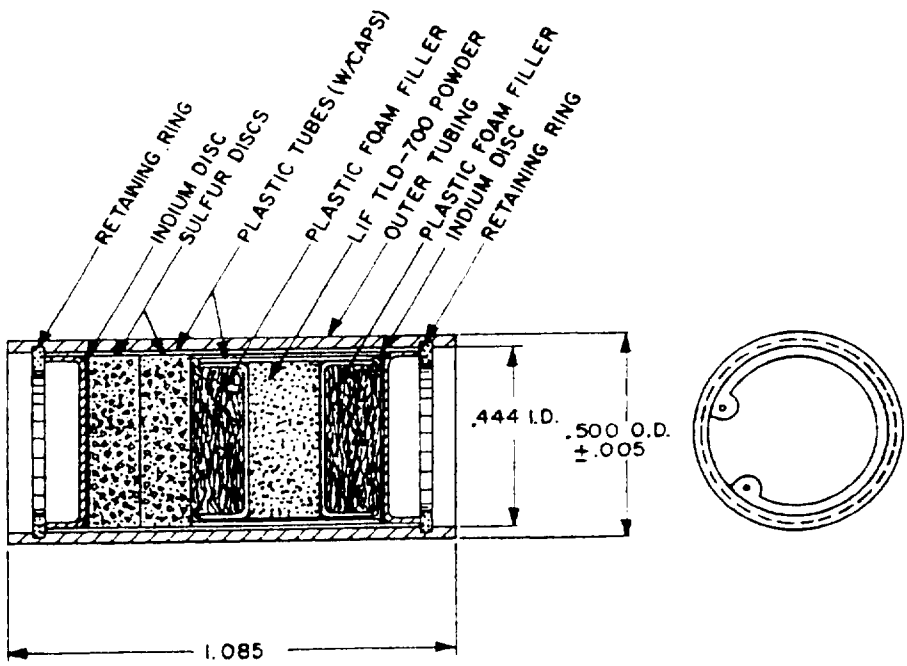

FIGURE 1. ACCIDENT DOSIMETER

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SPECIFICATION ANALYSIS SHEET

Form Approved
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INSTRUCTIONS: This sheet is to be filled out by personnel, either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments and suggestions submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or serve to amend contractual requirements.

SPECIFICATION

ORGANIZATION

CITY AND STATE

CONTRACT NUMBER

MATERIAL PROCURED UNDER A

☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?

A. GIVE PARAGRAPH NUMBER AND WORDING.

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID

3. IS THE SPECIFICATION RESTRICTIVE?

☐ YES ☐ NO *(If "yes", in what way?)*

4. REMARKS *(Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)*

SUBMITTED BY *(Printed or typed name and activity - Optional)*

DATE

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