DEFENSE LOGISTICS AGENCY
LAND AND MARITIME
P.O. BOX 3990
COLUMBUS, OHIO 43218-3990

12 June 2015

MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION

SUBJECT: Engineering Practices Study (EPS), MIL-STD-750, Radioisotope dry gross leak test dwell enhancement procedure. Project Number 5961–2015–070.

The initial draft for this subject document, dated 12 June 2015, is now available for viewing and downloading from the DLA Land and Maritime–VA Web site:

http://www.landandmaritime.dla.mil/Programs/MilSpec/DocSearch.aspx

The initial draft of the subject document was generated to solicit user input to determine whether the proposed methodology for enhancing dwell time for radioisotope dry gross leak testing should be adopted by MIL-STD-750-1.

Concurrence or comments are required at this Center within 90 days from the date of this letter. Late comments will be held for the next coordination of the document. Comments from military departments must be identified as either "Essential" or "Suggested". Essential comments must be justified with supporting data. Military review activities should forward comments to their custodians of this office, as applicable, in sufficient time to allow for consolidating the department reply.

The point of contact for this document is Mr. Kyle Carpenter, DLA Land and Maritime-VAC, Post Office Box 3990, Columbus, OH 43218-3990. Mr. Carpenter can also be reached at 614-692-7078/850-7078, or by facsimile 614-692-6939/850-6939, or by e-mail to: Kyle.Carpenter@dla.mil.

/ Signed /

THOMAS M. HESS
Chief
Active Devices Branch

cc:
FM
VSS

ENGINEERING PRACTICE STUDY

PROJECT NUMBER: 5961-2015-070

TITLE: MIL-STD-750, PROCEDURE FOR ENHANCING THE DWELL TIME FOR RADIOISOTOPE DRY GROSS LEAK TESTING.

12 JUNE 2015

PRELIMINARY

STUDY CONDUCTED BY
DLA LAND AND MARITIME

Prepared by:
Kyle Carpenter
DLA-VAC

ATTCH 1

I. OBJECTIVES: An engineering practice study is being conducted to establish a dwell time enhancement procedure. The proposed procedure (attachment 1) is designed to increase the dwell time for devices tested using radioisotope dry gross leak testing.

II. BACKGROUND: MIL-STD-750-1, Test Method 1071 (Hermetic Seal), paragraph 5 (radioisotope dry gross leak) is currently limited to devices which: 1) contain an approved gettering material, 2) have an internal free cavity volume of .01 cc or larger, or 3) can meet the requirements of MIL-STD-750-1, Test Method 1071, paragraph 5.a and 5.b.

To ensure accurate hermeticy test results, all testing must be completed within the required dwell time. Dwell time is defined as the maximum time allowed from the removal of the device from pressurization to the completion of device testing.

The proposed dwell time enhancement procedure utilizes a deionized water immersion step immediately following the pressurization sequence. This immersion step traps the Kr85 gas inside the device cavity, ensuring that an accurate Kr85 hermeticity reading can be made.

DLA is requesting that custodians, review activities, users, manufacturers, and laboratories utilizing the above test condition perform the proposed test procedure and verify its effectiveness on a package style of their choosing. The comment period for this effort is being extended from 45 days to 90 days to provide ample time for completion.

III. RESULTS: All results and comments shall be submitted to Kyle.Carpenter@dla.mil within 90 days from the date of this letter. The final results of this effort, including recommendations and conclusions, will be documented in the final EPS report.

IV. CONCLUSIONS: If proven effective, the proposed procedure will be added to MIL-STD-750-1, Test Method 1071.

ATTACHMENT 1

DWELL TIME ENHANCEMENT PROCEDURE.

1. Device(s) shall be subjected to the pressurization requirements of Test Method 1071, Condition B, paragraph 5.2.

2. Device(s) shall be immersed in deionized (DI) water within one minute upon removal from the pressurization chamber.

3. Device(s) shall remain submerged until time for measurement.

4. Once removed from DI immersion, device(s) shall be tested within 10 minutes.

5. Device(s) shall not be dried until after testing is completed. Drying the device(s) will negate effect of the enhancement procedure.