MEMORANDUM FOR Commander, Defense Technical Information Center, Building 5, Cameron Station, Alexandria, VA, 22304-6145

SUBJECT: Inclusion of Performance Oriented Packaging Test Report into DLA Data Base

1. The enclosed report (DOD POP HM TR/AYD 94-018) entitled: "Performance Oriented Packaging Testing of XM929 White Phosphorus Filled Body Assemblies for 120mm Mortar Packed in a Plywood Container" is hereby submitted for formal release. Notification of release should be sent to the letterhead address.

2. If there are any questions or comments regarding this report, contact Mr. D. Kirshteyn at 201-724-2173 (DSN 880-2173).

Encl

EUGENE FARRELL
Acting Chief, Packaging Division
This report contains test results conducted on the XM929 WP Body Assy. for 120mm Mortar packaged in plywood box per drawing 12961145. The tests were conducted in accordance with requirements of 49 CFR part 107. The packaging is submitted for Performance-Oriented Packaging certification.
I. Report Number: DOD POP HM TR/AYD 94-018

II. Title: Performance-Oriented Packaging Testing of XM929 White Phosphorus Filled Body Assemblies for 120mm Mortar Packed in a Plywood Container.

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Performing Activity: U.S. Army Armament Research, Development and Engineering Center (ARDEC)

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Date: August 1994

Distribution Statement A

Approved for public release; distribution is unlimited.
1. Data:

Container:

Type: Box, Plywood  
UN Code: 4D  
Specification Number: None  
Material: Plywood  
Dimensions: 75.72cm X 75.72cm X 62.23cm (29 13/16" X 29 13/16" X 24 1/2")  
Gross Weight: 382 kg (840 lbs)  
Drawing: 12961145

Product:

Name: XM929 White Phosphorus Filled Body Assembly  
Part Number: 12577607  
United Nations Identification Number: UN 1381  
United Nations Packaging Group: I  
United Nations Proper Shipping Name: PHOSPHORUS, WHITE  
Physical State: Solid  
Number of body assemblies per Container: 25  
NSN: 1315-01-383-9435

2. Reference Material:

a. Federal Register, "49 CFR Part 107-179"  
3. Background:

This report details the Performance-Oriented Packaging (POP) test performed on XM929 Inert Filled Body Assy packed in a plywood box IAW dwg. 12961145. 25 XM929 inert Filled Body Assy were utilized to simulate the proper content weights. The weight of the tested packed out plywood boxes was 919 lbs. The tested weight is larger than the actual tested weight due to the addition of extra weights as a safety factor. The method of pack was consistent with DWG. 12961145.

4. Testing:

a. Vibration Test (178.608):

Procedure-

One container was vibrated on a vibration table unrestrained for a two hours period. The peak-to-peak displacement was one inch and the frequency was 210 cycles per minute. This frequency was sufficient to allow the pack to become completely airborne enabling a 1/16" piece of strapping material to be slid underneath the pack during testing.

Results-

After the test the container experienced no structural damage; there was no spillage of contents; the passing criteria was met.

b. Drop Test (178.603):

Procedure-

Three containers were utilized for the drop tests. The container that had been previously vibrated was reused to drop in the three orientations: flat on the bottom, flat on the top, flat on long side. The second container was dropped flat on the short side. The third container was dropped on a corner. The height for all five drops was 1.8 meters (5.9 feet).

Results-

There was no significant damage on the first four drops. On the 5th drop on the corner one support and one middle strap broke. The impact corner also sustained minor damage. However the contents remained inside the container and the package was capable of being handled without danger of spillage. Based on the results, it was determined that the passing criteria was met.
c. Stacking Test (178.606):

Procedure:

A dead load of 6,440 lbs was applied to the top of single packed plywood container for 24 hour period. This simulates a stack height of 16 feet of identical packages.

Results-

The container adequately supported the load, satisfying the passing criteria.

5. Based on above equivalent POP Testing, the following POP symbol has been applied to plywood containers IAW Drawing 9313721.

4D1/X418/S/**

USA/DOD/AYD

INSERT THE LAST TWO DIGITS OF YEAR PACKED