

REPORT DOCUMENTATION PAGE

Form Approved
OMB No 0704-0188

AD-A251 518



information is estimated to average 1 hour per response, including the time for reviewing instructions, and maintaining the data needed, and completing and reviewing the collection of information. Send any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE 05/92		3. REPORT TYPE AND DATES COVERED POP Test (04/92)	
4. TITLE AND SUBTITLE Performance Oriented Packaging Testing of Task A Assembly in Wooden Container (NSWC 1H Drawing 10000) for Packing Group II Solid Hazardous Materials				5. FUNDING NUMBERS	
6. AUTHOR(S) J. Mike Dwyer				DTIC S ELECTE JUN 09 1992 A D	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Weapons Station Earle Test and Evaluation Branch (Code 5023) Colts Neck, NJ 07722-5000					
8. PERFORMING ORGANIZATION REPORT NUMBER DODPOPHM/USA/DOD/NADTR92007				10. SPONSORING/MONITORING AGENCY REPORT NUMBER Same as above	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Commander, Naval Surface Warfare Center Indian Head Division (Code 066D) Indian Head, MD 20640-5000					
11. SUPPLEMENTARY NOTES N/A					
12a. DISTRIBUTION/AVAILABILITY STATEMENT			12b. DISTRIBUTION CODE		
13. ABSTRACT (Maximum 200 words) This Performance Oriented Packaging (POP) test was conducted to ascertain whether the Task A Assembly in Wooden Container (NSWC 1H Drawing 10000) meets the Packing Group II requirements specified by the United Nations Recommendation on the Transportation of Dangerous Goods Document, ST/SG/AC.10/1, Revision 6, Chapters 4 and 9 and the Code of Federal Regulations, Title 49 CFR, Parts 107 through 178, dated 1 October 1991. The container's contents consisted of a simulated Task A Assembly weighing 29 kg (65 pounds), and an additional 2 kg (6 pounds) of weight. Gross weight of the loaded container was 44 kg (98 pounds). The test results indicate that the container has conformed to the POP requirements.					
14. SUBJECT TERMS POP Test of Task A Assembly in Wooden Container			15. NUMBER OF PAGES 7		
			16. PRICE CODE		
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UL	19. SECURITY CLASSIFICATION OF ABSTRACT UL	20. LIMITATION OF ABSTRACT UL		

This document has been approved
for public release and sale; its
distribution is unlimited.

DODPOPHM/USA/DOD/NADTR92007

PERFORMANCE ORIENTED PACKAGING TESTING
OF
TASK A ASSEMBLY IN WOODEN CONTAINER
(NSWC 1H DRAWING 10000)
FOR PACKING GROUP II SOLID HAZARDOUS MATERIALS

Author:
J. Mike Dwyer
Mechanical Engineering Technician

Performing Activity:
Naval Weapons Station Earle
Colts Neck, New Jersey 07722-5000

May 1992

FINAL

DISTRIBUTION UNLIMITED

Sponsoring Organization:
Naval Surface Warfare Center
Indian Head Division (Code 066D)
Indiana Head, Maryland 20640-5000



Accession For	
NTIS CRA&I	
DTIC TAB	
Unannounced	
Justification	
By	
Distribution /	
Availability Codes	
Dist	Avail and/or Special
A-1	

92 6 05 001

92-14874



INTRODUCTION

This Performance Oriented Packaging (POP) test was conducted to ascertain whether the Task A Assembly in Wooden Container (NSWC 1H Drawing 10000) meets the Packing Group II requirements specified by the United Nations Recommendation on the Transportation of Dangerous Goods Document, ST/SG/AC.10/1, Revision 6, Chapters 4 and 9 and the Code of Federal Regulations, Title 49 CFR, Parts 107 through 178, dated 1 October 1991. The container's contents consisted of a simulated Task A Assembly weighing 29 kg (65 pounds), and an additional 2 kg (6 pounds) of weight. Gross weight of the loaded container was 44 kg (98 pounds).

Due to unavailability only one container was used for testing. This is less than the number required by the regulations. Approval for this deviation has been granted by the Under Secretary of Defense, Memorandum for the Joint Logistics Commanders dated 22 February 1990.

TESTS PERFORMED

1. Base Level Vibration Test

This test was performed in accordance with Title 49 CFR, Part 178, Subpart M, Sec. 178.608. The container was placed on a repetitive shock platform which has a vertical linear motion of 1-inch double amplitude. Movement of the container was restricted during vibration in all but the vertical direction. The frequency of the platform was increased until the container left the platform 1/16 of an inch at some instant during each cycle. Test time was 1 hour.

2. Stacking Test

This test was performed in accordance with Title 49 CFR, Part 178, Subpart M, Sec. 178.606. The container was subjected to a force applied to its top surface equivalent to the total weight of identical packages stacked to a minimum height of 3 meters (including the test container). A weight of 622 kg (1,372 pounds) was stacked on the test container. The test was performed for 24 hours. The weight was then removed and the container examined.

3. Drop Test

This test was performed in accordance with Title 49 CFR, Part 178, Subpart M, Sec. 178.603. Five drops were performed from a height of 1.2 meters (4 feet), impacting the following surfaces:

- a. Flat bottom.
- b. Flat top.

- c. Flat on long side.
- d. Flat on short side.
- e. One corner.

PASS/FAIL

1. Base Level Vibration Test

The criteria for passing the base level vibration test is outlined in Title 49 CFR, Sec. 178.608(c): No test sample should show any deterioration which could adversely affect transportation safety or any distortion liable to reduce packaging strength.

2. Stacking Test

The criteria for passing the stacking test is outlined in Title 49 CFR, Sec. 178.606(d): No test sample may show any deterioration which could adversely affect transportation safety or any distortion likely to reduce its strength, cause instability in stacks of packages, or cause damage to inner packagings likely to reduce safety in transportation.

3. Drop Test

The criteria for passing the drop test is outlined in Title 49 CFR, Sec. 178.603(f): A package is considered to successfully pass the drop tests if for each sample tested, no rupture occurs which would permit spillage of loose explosive substances or articles from the outer packaging.

TEST RESULTS

1. Base Level Vibration Test

Satisfactory.

2. Stacking Test

Satisfactory.

3. Drop Test

Satisfactory.

DISCUSSION

1. Base Level Vibration Test

The input vibration frequency was 3.5 Hz. Immediately after the vibration test was completed, the container was removed from the platform, turned on its side and inspected. No unfavorable distortion or deterioration was observed.

2. Stacking Test

The container was inspected after the 24-hour period was over. No unfavorable distortion or deterioration was observed.

3. Drop Test

After each drop, the container was inspected. The contents were completely retained by the container.

REFERENCE MATERIAL

A. United Nation's "Recommendation on the Transportation of Dangerous Goods," ST/SG/AC.10/1, Revision 6.

B. Code of Federal Regulations, Title 49 CFR, Parts 107-178.

C. Bureau of Explosives Tariff No. BOE 6000K Hazardous Materials Regulations of the Department of Transportation by Air, Rail, Highway, Water including Specifications for Shipping Containers.

DISTRIBUTION LIST

Defense Technical Information Center (2 copies)
ATTN: DTIC/FDA
Bldg. 5, Cameron Station
Alexandria, VA 22304-6145

Defense General Supply Center (1 copy)
ATTN: DDRV-TMPA, D. Gray
Richmond, VA 23219

TEST DATA SHEET

DATA SHEET:	
Container: Task A Assembly in Wood Container	
Type: 4C1	Container P/N or NSN: NSWC Indian Head Drawings 10000, 10001, 10002
Specification Number: N/A	Material: Wood
Gross Weight: 44 kg (98 pounds)	Dimensions: 70" L x 8" W x 8" H
Closure (Method/Type): Strapping	Tare Weight: 12 kg (27 pounds)
Additional Description:	
PRODUCT:	
Name: See table	NSN(s): See table
United Nations Number: See table	
United Nations Packing Group: II	
Physical State (Solid, Liquid, or Gas): Solid	
Vapor Pressure (Liquids Only): N/A At 50 °C: N/A At 55 °C: N/A	
Consistency/Viscosity: N/A	Density/Specific Gravity: N/A
Amount Per Container:	Flash Point: N/A
Net Weight: See table	
TEST PRODUCT:	
Name: Launch Canister (for Task A Assembly)	Physical State: Solid
Consistency: N/A	Density/Specific Gravity: N/A
Test Pressure (Liquids Only): N/A	
Amount Per Container: N/A	Net Weight: 32 kg (71 pounds)
Additional Description:	
The canister was filled with a steel tube, and wood and lead weights. The net weight includes the current maximum product weight plus an additional 2 kg (6 pounds).	

TABLE 1
Products Approved for Shipping in
Wooden Container (NSWC 1H Drawing 10000)

NALC	NSN	Product Type	Packing Drawings	Haz Class/Div	UN Number	Units/Cntr	Unit Weight (lb)
N/A	N/A	Task A Assembly	NSWC 1H 10001,10002	1.1D	0463	1	65

N/A = Not Assigned

**TASK A ASSEMBLY IN
WOODEN CONTAINER
(NSWC 1H DRAWING 10000)
POP MARKING**

UN 4C1/Y44/S//USA/DOD/NAD**

**** YEAR LAST PACKED OR MANUFACTURED**