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1b. RESTRICTIVE MARKINGS

3. DISTRIBUTION / AVAILABILITY OF REPORT

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4. PERFORMING ORGANIZATION REPORT NUMBER(S)  
DOD POP HMTR/AYD 90-001

5. MONITORING ORGANIZATION REPORT NUMBER(S)

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6b. OFFICE SYMBOL (If applicable)  
SMCAR-AEP

7a. NAME OF MONITORING ORGANIZATION

6c. ADDRESS (City, State, and ZIP Code)  
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ARDEC  
PICATINNY ARSENAL, NJ 07806-5000

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11. TITLE (Include Security Classification)

PERFORMANCE ORIENTED PACKAGING TESTING OF CARTRIDGE, 40MM

12. PERSONAL AUTHOR(S)  
MICHAEL SELK

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16. SUPPLEMENTARY NOTATION

SEE ATTACHED

17. COSATI CODES		
FIELD	GROUP	SUB-GROUP

18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)  
PERFORMANCE ORIENTED PACKAGING, POP, 40MM WOOD CONTAINER

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

THIS REPORT CONTAINS THE TESTING AND TEST RESULTS ON THE 40MM CARTRIDGES. PACKED 20 CARTRIDGES/FIBERBOARD BOX, 3 FIBERBOARD BOXES/WOOD BOX (60 CARTRIDGES TOTAL).

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21. ABSTRACT SECURITY CLASSIFICATION  
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22a. NAME OF RESPONSIBLE INDIVIDUAL  
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22b. TELEPHONE (Include Area Code)  
201 724-2330

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SMCAR-AEP

I REPORT NUMBER DOD POP HM TR/AYD 90-001

II TITLE: PERFORMANCE ORIENTED PACKAGING TESTING OF CARTRIDGE,  
40MM, M918TP

AUTHOR: MICHAEL SELK

PERFORMING ACTIVITY: ARDEC

ADDRESS: DEPARTMENT OF THE ARMY  
ARDEC  
HQ, U.S. ARMY ARMAMENT, MUNITIONS, AND  
CHEMICAL COMMAND  
PICATINNY ARSENAL, NJ 07806-5000  
ATTN: SMCAR-AEP

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A

1. DATA:

CONTAINER:

TYPE: CONTAINER, WOOD, BOX  
UN CODE: 4C1  
SPECIFICATION NUMBER: MIL-B-2427G  
MATERIAL: WOOD  
CAPACITY: 40.4 LITERS, 23.6 KG (52.0 LBS)  
DIMENSIONS: 50.6 X 29.9 X 26.7 (19 15/16 X 11 3/4 X 10 1/2 IN)  
GROSS WEIGHT: 30.2 KG (66.5 LBS)

PRODUCT:

NAME: CARTRIDGE 40MM  
DRAWING NUMBER: 9399372  
UNITED NATIONS NUMBER: 0338  
UNITED NATIONS PACKING GROUP: II  
UNITED NATIONS NOMENCLATURE: CARTRIDGES FOR WEAPONS, BLANK  
PHYSICAL STATE: SOLID  
AMOUNT PER CONTAINER: 60 (20 PER FIBERBOARD BOX)

2. BACKGROUND:

THIS REPORT CONTAINS THE TESTING AND TEST RESULTS PERFORMED ON THE M918TP 40MM CARTRIDGE PACKED IN A WOOD BOX, MANUFACTURED IN ACCORDANCE WITH MIL-B-2427G. TWENTY (20) CARTRIDGES WERE PACKED IN A FIBERBOARD BOX AS SPECIFIED BY DRAWING 12597940, THREE (3) OF THESE FIBERBOARD BOXES WERE PACKED IN ONE WOOD BOX ACCORDING TO DRAWING 12597942. THIS PACK IS SUBMITTED FOR PERFORMANCE ORIENTED PACKAGING CERTIFICATION. ALL TESTS DISCUSSED IN THE FOLLOWING SECTION WERE PERFORMED IN ACCORDANCE WITH PERFORMANCE ORIENTED PACKAGING TEST REGULATIONS.

3. TEST:

FOUR CONTAINERS WERE DROPPED ONCE FROM 2.1 METERS (7 FEET) AND ONE CONTAINER WAS DROPPED 12 METERS (40 FEET) IN LIEU OF UN REQUIREMENTS OF 1.2 METERS (4 FEET). THE CONTAINERS WERE DROPPED ON A 3 INCH SOLID STEEL PLATE REINFORCED BY 18 INCHES OF CRUSHED ROCK IN 5 DIFFERENT ORIENTATIONS. THE ORIENTATIONS WERE AS FOLLOWS:

BOTTOM (12M)	BOX #5
TOP	BOX #1
SIDE, LONG	BOX #3
SIDE, SHORT	BOX #4
TOP CORNER	BOX #2

THE TEMPERATURES USED WERE; 71 C (160 F), 24 C (75 F), AND -51 C (-60 F). THE BOX DROPPED FROM 12M WAS AT AMBIENT (24 C). NOTE: THESE TESTS CONDUCTED EXCEED UN REQUIREMENTS WHICH IS 5 CONTAINERS DROPPED ONCE EACH IN 5 ORIENTATIONS AT FOUR FEET AND AMBIENT TEMPERATURE.

4. RESULTS:

THE CONTAINERS PASSED ALL TESTS SINCE NONE OF THE CONTENTS WERE DISCHARGED. THEY ARE CONSIDERED SAFE FOR INTERNATIONAL TRANSPORTATION IN ACCORDANCE WITH PERFORMANCE ORIENTED PACKAGING REGULATIONS.

*See also the test report.*

5. REFERENCED MATERIAL:

A. UNITED NATIONS, "TRANSPORT OF DANGEROUS GOODS", 4TH EDITION.