

DI-PACK-81059A

DATA ITEM DESCRIPTION

Title: PERFORMANCE ORIENTED PACKAGING TEST REPORT

Number: DI-PACK-81059A

Approval Date: 25 Mar 11

AMSC Number: 9188

Limitation:

DTIC Applicable:

GIDEP Applicable:

Office of Primary Responsibility: AR

Applicable Forms:

Use/relationship: This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement as delineated in the contract.

This DID should be applied when test reports are required for the testing of packaging systems for transportation of hazardous materials.

A typical Statement of Work (SOW) applicable for use in conjunction with this Data Item Description is as follows:

“The contractor shall perform testing and shall acquire data necessary to support compliance with the Performance Oriented Packaging (POP) requirements of hazardous materials as defined in Title 49, Code of Federal Regulations (CFR), the International Maritime Organization’s International Maritime Dangerous Goods (IMDG) Code, and the International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Hazardous Goods. The contractor shall document the results of the testing and data acquisition (DI-PACK-81059).

The “Code of Federal Regulations” Title 49 is available from the following:

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

Requirements:

1. Reference Documents.
2. Format. The Performance Oriented Packaging Test Report shall be submitted per the requirements stated in this DID.
3. Content Requirements. The Performance Oriented Packaging Test Report content shall be as follows:
 - 3.1. Report Cover. The Performance Oriented Packaging Test Report cover page shall contain the following data:
 - a. Contractor internal report number.
 - b. Report type (interim or final).
 - c. Title. The title shall include the type of packaging material and the hazardous material being packed. (e.g., “Performance Oriented Packaging Testing of Wood

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Box for the M18/M83/AN-M8 Smoke Hand Grenade). If the hazardous material being packed is a component of an ammunition item, the ammunition and/or weapon system for which the hazardous material is used must be stated clearly in the title. For example, "Performance Oriented Packaging Testing of ... for the M734A1 Fuze on 120mm M934A1 Mortar Ammunition.

- d. Date the Performance Oriented Packaging Test Report was prepared.
- e. Author's name.
- f. Contract number applicable to the Performance Oriented Packaging Test Report.

3.2. Report Title Page. The performance oriented Packaging Test Report title page shall contain the following data:

- a. Contractor internal report number.
- b. Report type (Interim or Final)
- c. Title (e.g., "Performance Oriented Packaging Testing of ...).
- d. Date the Performance Oriented Packaging Test Report was prepared.
- e. Contract number applicable to the Performance Oriented Packaging Test Report.
- f. Contractor's (business) name, address, and telephone number.
- g. Testing activity's (business) name, address, and telephone number (if other than the contractor).
- h. Testing period (applicable dates).
- i. Name, position title, address, and (business) telephone number of the author/.
- j. Sponsoring organization (business) name, address, and telephone number.
- k. Security Classification.

3.3. Data Sheet.

3.3.1. Information about Item.

- a. Item nomenclature. Nomenclature for actual item packed.
- b. National Stock Number. Identify National Stock Number(s) (NSN) for actual item(s) packed.
- c. Department of Defense Identification number (DODIC). If applicable.
- d. Hazard Class and Division.
- e. Explosive Number (Ex).
- f. UN Identification Number.
- g. Proper Shipping Name.
- h. Packing group.

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- i. Net Explosive Weight (NEW). Weight of hazardous component in metric and pound units, if applicable.
- j. Weight of item. Designate the weight in metric and pound units for which the packaging design type has been tested.
- k. Density/Specific Gravity of Liquid. If applicable, designate the density/specific gravity of liquid for which the packaging design type has been tested.
- l. Vapor Pressure. Vapor pressure of the liquid to be transported, in metric and inch-pound units at either 50°C or 55°C.
- m. Total number of items in the exterior container.
- n. Physical state. Identify the physical state as either solid, liquid, or gas.

3.3.2. Tested Packaging Information.

- a. Gross package weight. Weight of item and all necessary packaging material.
- b. Tested package weight. Minimum 1.10 times of gross package weight.
- c. Correct package method. Consult Title 49, Code of Federal Regulations (CFR).

3.3.3. Exterior Shipping Container.

- a. Type of container. UN code, in accordance with TABLE I.
- b. Material. UN code, in accordance with TABLE I.
- c. Specification. Identification of the specification (e.g. federal, military, industry, commercial, company) for the exterior shipping container type (reference 10.2.3.3 a) and material (reference 10.2.3.3 b). If the applicable specifications are other than federal or military specifications, a reference copy shall be included with the test report.
- d. Full UN code for exterior container. In accordance with TABLE I.
- e. Dimensions. Overall outer and inner dimensions. Include drawing(s) of any containers equipped with handles, skids, or lifting or tie-down mounts.
- f. Number of intermediate container(s) (if applicable).
- g. Number of inner container(s).

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- h. Cushioning material/dunnage. Thickness and nomenclature for type of cushioning material (e.g. chipboard, corrugated fiberboard, vermiculite, etc.). Identification of the specifications (e.g. federal, military, industry, commercial, company) for the cushioning material. If the applicable specifications are other than federal or military specifications, a reference copy shall be included.
- i. Closure method and specifications. Nomenclature for method/type of closure (e.g. heat seal, glue, tape, staple). Identification of the specifications (e.g. federal, military, industry, commercial, company) for the closure method. If the applicable specifications are other than federal or military specifications, a reference copy shall be included.
- j. Banding and specification. Nomenclature for method/type of banding (e.g. steel/plastic bands, fiber-filament tape). Identification of the specifications (e.g. federal, military, industry, commercial, company) for the closure method. If the applicable specifications are other than federal or military specifications, a reference copy shall be included.
- k. Additional description. Complete description of any significant characteristics (not specifically identified above) needed to describe the shipping container (e.g. wood species, deviation from specification, etc.).

3.3.4. Intermediate Packaging Container of Combination Packaging (if applicable).

- a. Type of container. Nomenclature of intermediate packaging (e.g. can, carton, bag, bottle).
- b. Material. Nomenclature of intermediate packaging composition (e.g. metal, paperboard, plastic, glass).
- c. Specification. Identification of the specification (e.g. federal, military, industry, commercial, company) for the intermediate packaging container type (reference 10.2.3.4 a) and material (reference 10.2.3.4 b). If the applicable specifications are other than federal or military specifications, a reference copy shall be included.
- d. Dimensions. Overall outer and inner dimensions. Include drawing(s) of any containers equipped with handles, skids, or lifting or tie-down mounts.
- e. Number of inner container(s). If applicable.
- f. Cushioning material/dunnage. Nomenclature for type of cushioning material or dunnage (e.g. chipboard, corrugated fiberboard, vermiculite, etc.). Identification of the specifications (e.g. federal, military, industry, commercial, company) for the cushioning material. If the applicable specifications are other than federal or military specifications, a reference copy shall be included.

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- g. Closure method and specifications. Nomenclature for method/type of closure (e.g. heat seal, glue, tape, staple). Identification of the specifications (e.g. federal, military, industry, commercial, company) for the closure method. If the applicable specifications are other than federal or military specifications, a reference copy shall be included.
- h. Additional description. Complete description of any significant characteristics (not specifically identified above) needed to describe the shipping container (e.g., wood species, deviation from specification, etc.).

3.3.5. Inner Packaging Container of Combination Packaging (if applicable).

- a. Type of container. Nomenclature of inner packaging (e.g. can, carton, bag, bottle).
- b. Material. Nomenclature of inner packaging composition (e.g. metal, paperboard, plastic, glass).
- c. Specification. Identification of the specification (e.g. federal, military, industry, commercial, company) for the inner container type (reference 10.2.3.5 a) and material (reference 10.2.3.5 b). If the applicable specifications are other than federal, military, or common commercial (e.g. ASTM) specifications, a reference copy shall be included.
- d. Dimensions. Overall outer and inner dimensions. Include drawing(s) of any containers equipped with handles, skids, or lifting or tie-down mounts.
- e. Cushioning material/dunnage. Nomenclature for type of cushioning material or dunnage (e.g. chipboard, corrugated fiberboard, vermiculite, etc.). Identification of the specifications (e.g. federal, military, industry, commercial, company) for the cushioning material. If the applicable specifications are other than federal, military or common commercial (e.g. ASTM) specifications, a reference copy shall be included.
- f. Closure method and specifications. Nomenclature for method/type of closure (e.g. heat seal, glue, tape, staple). Identification of the specifications (e.g. federal, military, industry, commercial, company) for the closure method. If the applicable specifications are other than federal, military or common commercial (e.g. ASTM) specifications, a reference copy shall be included.
- g. Additional description. Complete description of any significant characteristics (not specifically identified above) needed to describe the shipping container (e.g., wood species, deviation from specification, etc.).

3.3.6. Packaging Instructions/Drawings.

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- a. Packing & Marking Drawings or Special Packaging Instructions (SPIs). Include all packaging, packing, and marking drawing(s), and/or the Special Packaging Instructions (SPI) required to produce the tested package.
- b. Outer container. Include outer container drawing(s) for the item.
- c. Intermediate packaging container (if applicable). Include intermediate container drawing(s) for the item.
- d. Inner packaging container (if applicable). Include inner container drawing(s) for the item.
- e. Cushioning material/dunnage. Include cushioning material, dunnage, or both drawing(s) for the item.
- f. Partitions (if applicable). Include partition drawing(s) for the item.
- g. Barrier bag (if applicable). Include barrier bag drawing(s) for the item.
- h. Other packaging components (if applicable). Any packaging materials not listed above.

3.4. Testing.

3.4.1. Introduction. A brief description of why specific tests were performed and the rationale for the test product selected (of applicable). Also, a detailed and complete description for the exact packaging materials used in the packaging system, the rationale for the selection of these materials, the tests performed, and the test conditions under which the tests were performed. Photographic documentation of the packaging and its components, test procedures, and test results (e.g. damage to packaging) shall be provided.

3.4.2. Applicable packing group test requirement. A description of the applicable tests required/performed for the commodity of hazard class, as well as the packing group selection rationale. Pass/fail criteria shall be included.

3.4.3. Test Procedure.

- Actual Product Tests.

- a. Density/specific gravity of actual product. Density in metric and English measurement units.
- b. Drop height. When actual product is used for testing, drop height in metric and English measurements units.
- c. Stacking height. When actual product is used for testing, stacking weight/force in metric and English measurements units.
- d. Vapor Pressure. For liquids only, vapor pressure in metric and English units for the following temperatures.
(1)50 degrees Celsius.

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- (2) 55 degrees Celsius.
 - e. Flash point. Temperature in Celsius and Fahrenheit units and the type test used.
 - f. Air pressure. When an actual product is used for testing and is a liquid, air pressure in metric and English measurement units.
- Test Product Tests. If a test product is used in lieu of the actual product, identify the following characteristics of the test product.
- a. Test product nomenclature. Nomenclature for the test product (e.g., water, 50% ethyl glycol water solution, lead shot).
 - b. Net weight of test product. Weight in metric and English measurement units.
 - c. Gross weight. Weight in metric and English measurement units.
 - d. Density/specific gravity of test product. Density in metric and English measurement units.
 - e. Drop height. When test product is used for testing, drop height in metric and English measurement units.
 - f. Stacking Height. When a test product is used for testing, stacking weight/force in metric and English measurement units.
 - g. Vapor pressure. For liquids only, vapor pressure in metric and English measurement units for the following temperatures.
 - (1) 50 degrees Celsius.
 - (2) 55 degrees Celsius.
 - h. Flash point. Temperature in Celsius and Fahrenheit units and the type test used.
 - i. Air pressure. When a test product is used for testing and is a liquid, air pressure in metric and English measurement units.
- 3.4.4. Discussion of test results. A narrative discussion and description of the test results, including rationale for any variations.
- 3.4.5. References. Identification of all references used in the development, testing, and documenting of the hazardous item.

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TABLE I. United Nations container type designations

	TYPE	MATERIAL	CATEGORY	UNITED NATIONS CODE	
1	Drum	A. Steel	non-removable head	1A1	
			removable head	1A2	
		B. Aluminum	non-removable head	1B1	
			removable head	1B2	
			D. Plywood		1D
			G. Fiber		1G
			H. Plastics	non-removable head	1H1
removable head	1H2				
	N. Metal (other than Steel or Aluminum)	non-removable head	1N1		
		removable head	1N2		
2	Barrels	C. Wood	bung type	2C1	
			slack type (removable head)	2C2	
3	Jerricans	A. Steel	non-removable head	3A1	
			removable head	3A2	
		B. Aluminum	non-removable head	3B1	
			removable head	3B2	
			H. Plastic	non-removable head	3H1
		removable head	3H2		
4	Boxes	A. Steel		4A	
		B. Aluminum		4B	
		C. Natural Wood	ordinary box	4C1	
			sift-proof walls	4C2	
		D. Plywood		4D	
		F. Reconstituted Wood		4F	
		G. Fiberboard		4G	
			H. Plastics	expanded plastic box	4H1
solid plastic box	4H2				
5	Bags	H. Woven Plastics	unlined or non-coated	5H1	
			sift-proof	5H2	
			water-resistant	5H3	
			H. Plastic Film		5H4
			L. Textile	unlined or non-coated	5L1
				sift-proof	5L2
				water-resistant	5L3
	M. Paper	multi-wall	5M1		
		multi-wall water-resistant	5M2		

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TABLE I. United Nations container type designations (continued)

	TYPE	MATERIAL	CATEGORY	UNITED NATIONS CODE
6	Composite Packaging	H. Plastics receptacle	in a steel drum in a steel crate or box in an aluminum drum in an aluminum crate or box in a wooden box in a plywood drum in a plywood box in a fiber drum in a fiberboard box in a plastic drum in a plastic box	6HA1 6HA2 6HB1 6HB2 6HC 6HD1 6HD2 6HG1 6HG2 6HH1 6HH2
		P. Glass, porcelain, or stoneware receptacle	in a steel drum in a steel crate or box in an aluminum drum in an aluminum crate or box in a wooden box in a plywood drum in a wicker work hamper in a fiber drum in a fiberboard box in expanded plastic packaging in solid plastic packaging	6PA1 6PA2 6PB1 6PB2 6PC 6PD1 6PD2 6PG1 6PG2 6PH1 6PH2

4. End of DI-PACK-81059A.