



Unclassified



Packaging and Marking



Distribution Statement A: Approved for public release; distribution is unlimited.

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What is...

Commercial Packaging:

- Term that has no particular meaning.
- Must be further defined by performance requirements to be effective.
- The term “Commercial Packaging” or “Best Commercial Packaging” without further reference is not acceptable.
- Is used **only** when cost effective and able to withstand anticipated logistics conditions.

Packaging for the Military:

- A prescribed requirement with engineered applications and tested methods to protect an item.
- Designed for the Military Distribution System.
- Follow MIL-STD-2073 and MIL-STD-129.
- Provides a tested established packaging design for future procurements.



Specifications and Standards

- **MIL-STD-2073-1** “DOD Standard Practice for Military Packaging”
- **MIL-STD-129P (4)** “Marking For Shipment and Storage”
- **ASTM D 4169** “Standard Practice for Performance Testing of Shipping Containers and Systems”
- **MIL-STD-3003B** “Vehicles, Wheeled; Preparation For Shipment and Storage Of”
- **TM 38-470** “Storage and Maintenance of Army Prepositioned Stock Material”



Testing Standards

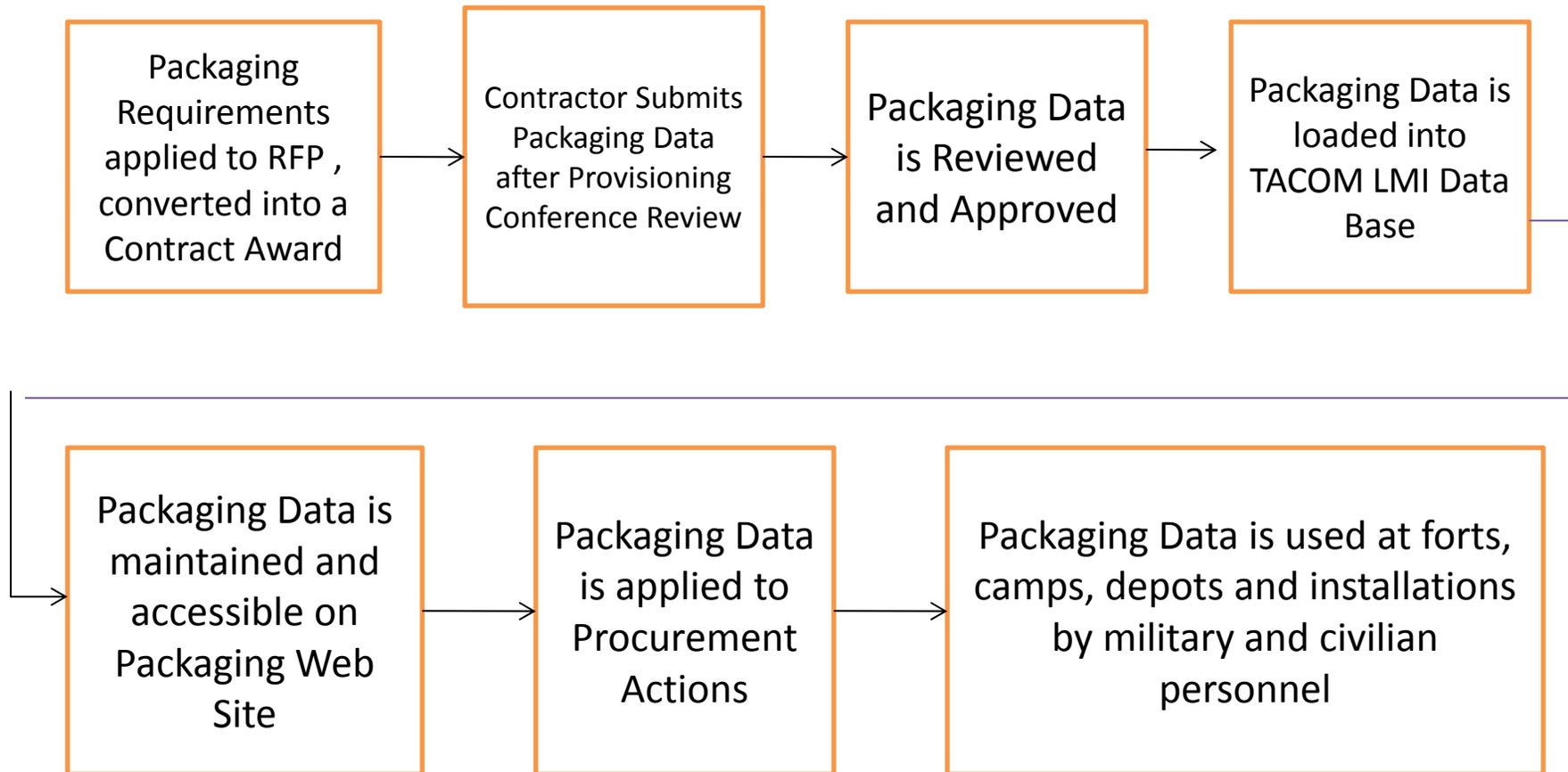
- **ASTM D 4169 “Standard Practice for Performance Testing of Shipping Containers and Systems” (All Special Packaging Instructions deliverables must pass this testing)**

“This practice provides a uniform basis of evaluating, in a laboratory, the ability of shipping units to withstand the distribution environment. This is accomplished by subjecting them to a test plan consisting of a sequence of anticipated hazard elements encountered in various distribution cycles. This practice is not intended to supplant material specifications or existing pre-shipment test procedures.”

- Acceptance Criteria 1, Distribution Cycle 18, Assurance Level I
- Performance Testing is primarily focused on Handling – Manual and Mechanical (Schedule “A”) and Loose Load Vibration (Schedule “F”)
- Replicate testing and climatic conditioning are not required.
- Items with previously approved documented test results may be exempt from validation testing.



Packaging Data Development Flow





Packaging Data Classification



Common Group: (Coded Data)

- Items of low complexity and fragility.
- Predetermined coded packaging data has been developed.
- Output: coded data

Selective Group: (Coded Data)

- Items where predetermined coded data does not adequately specify packaging details.
- Illustrations or separate narrative instructions not required.
- Output: coded data

Special Group: (Special Packaging Instructions, SPI)

- Items requiring narrative instructions and figures to properly describe the packaging design developed.
- Items that require disassembly for packaging
- Items requiring special handling
- Items considered hazardous for transport
- Items considered to have a shelf-life
- NMWR Candidates
- Kits, sets, and items consisting of separate parts
- Output: Special Packaging Instruction (SPI) and coded data



Example of "Coded" PKG Data

Identification/Weights/Sizes		Packaging		Supplemental		Review/Document		
MIL-STD-2073		Local Cont.	BK	Hazmat	N	Shelf Life	0	
Pkg. Cat		01ZZ	PIC	488	QUP	001	ICQ	000
Pkg. Ref.								
LOP A TSC	B	LOP B TSC		LOP C TSC		LOP A PLRI	A	
LOP B PLRI	A	LOP C PLRI	N					
Method	20	Cleaning/Drying		Preservative		Wrap		
Cushioning		Thickness						
Unit Cont.		Unit Cont. Level		Special Mkg		Int. Cont.		
LOP A Pk. Cd.		LOP B Pk. Cd.		LOP C Pk. Cd.		OPI		
Cont. NSN								
Validate/Submit		Delete/Append		EPDS		TACOM Packaging		
Help		Create SPI						

Packaging data is provided under three separate classifications (Common, Selective & Special Group).

Common Group includes an item where the weight does not exceed 10 LBS and does not have a dimension greater than 24”.

Selective Group includes a item that is not considered a common group, has a unit pack dimension not to exceed 40”, has a unit pack weight not to exceed 40 LBS and a unit pack length plus girth combined not to exceed 84”.

Example of ASCII delimited text format

```
3040015803062","488","A","B",,"A","N","N","BK",,,,,,"0",,"CYLINDER","02700","0548","0108","0088","ZZZZ",,"001","000","11083","3G
4533",,"N","20",,,,,,,,,,,,,,"03490","0608","0180","0160","0010133",,,,,"10163",,,,,"ANTONIA",,"PENDING",,"062910"
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Special Group Items

(a.k.a Special Packaging Instructions)

- **Special Packaging Instructions (SPI)** provide narrative instructions or figures required to describe packaging requirements for items considered as...
 - Kits, sets and items of separate parts
 - Items requiring disassembly for packaging, repairable item(s)
 - Items requiring special handling procedures
 - Items containing hazardous material
 - Items assigned a shelf life and electrostatic discharge sensitive items
 - NMWR Candidates
- SPI design must meet test requirements in **ASTM D 4169** “Standard Practice For Performance Testing of Shipping Containers and Systems”.
- Each SPI submittal must be accompanied with a test report



Example of Special Packaging Instruction (SPI)

SPECIAL PACKAGING INSTRUCTION				Form Approved OMB No. 0704-0188		-DT NE	
<small>The public reporting burden for this collection of information is estimated to average 30 days per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THIS ADDRESS.</small>							
1. PART OR DRAWING NO./CAGE/NOMENCLATURE FA0395 IN5S7 LOUVRE ASSEMBLY, REAR		2. CAGE IN5S7		3. SPI NO. AK			
4. NATIONAL STOCK NO.		5. DATE 4-12-07		6. REVISION			
7. QUP 1 EA	8. ICD NONE	9. UNIT PACK WT. 138.0	10. UNIT PACK CU 8.546	11. UNIT PACK SIZE 38.6 X 35.1 X 10.9			
12. MILITARY PRESERVATION MIL-STD-2073-1D, METHOD 10			18. STEPS	19. REQD	20. DESCRIPTION		
13. CLEANING MIL-STD-2073-1D			1-B	1	WRAP: MIL-P-17667, TYPE II, SIZE: 72 X 40.		
14. DRYING MIL-STD-2073-1D			2-C	2	BLOCKING: ASTM-D 6199, GROUP II, WOOD, SIZE: 2 X 4 X 35-1/4		
15. PACKING			3-D	1	CONTAINER: ASTM-D 6880, CL 2, STYLE 4, MOD. SIZE: 35-5/8 X 32-1/8 X 6-3/8.		
a. LEVEL A MIL-STD-2073-1D AND NOTE E							
b. LEVEL B NOT APPLICABLE							
16. MARKING MIL-STD-129							
17. NOTES/DRAWING							
A. PRESERVATION AND PACKING SHALL BE IN ACCORDANCE WITH MIL-STD-2073-1D. B. SECURE WRAP USING TAPE. C. DIMENSIONS ARE NOMINAL. FOR PLACEMENT SEE ILLUSTRATION ON SHEET 2. D. CONTAINER MODIFIED USING 1-INCH NOMINAL LUMBER EXCEPT FOR SKIDS. E. UNIT CONTAINER IS THE SHIPPING CONTAINER.							

SPECIAL PACKAGING INSTRUCTION (Continuation Sheet)				Form Approved OMB No. 0704-0188		-DT NE	
<small>The public reporting burden for this collection of information is estimated to average 30 days per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THIS ADDRESS.</small>							
1. PART OR DRAWING NO./CAGE/NOMENCLATURE FA0395 IN5S7 LOUVRE ASSEMBLY, REAR		2. CAGE IN5S7		3. SPI NO. AK			
4. NATIONAL STOCK NO.		5. DATE 4-12-07		6. REVISION			
NOTES:							
ALL DIMENSIONS ARE IN INCHES.							



Special Packaging Instruction for Engines

- Follow ATPD 2232 and coordinate with TACOM LCMC Packaging office for engine preservation process and validation of the procedures.
 - To locate ATPD 2232 follow the link
<https://www.tacom.army.mil/ilsc/tdps/phst/SPI/05/67/34.pdf>
 - Packaging processes and materials shall be described for cleaning, drying, preserving, unit, intermediate (as applicable), and exterior packing, marking, and unitization. Figures and narrative data shall be developed to describe the form, fit, and function of packaging in sufficient detail for reproduction.
- To locate the following standards, use the assist website
<https://assist.daps.dla.mil/quicksearch/>
 - MIL-STD-2073-1
 - MIL-STD-129 P
 - MIL-STD-3003 B



Vehicle Processing Instructions



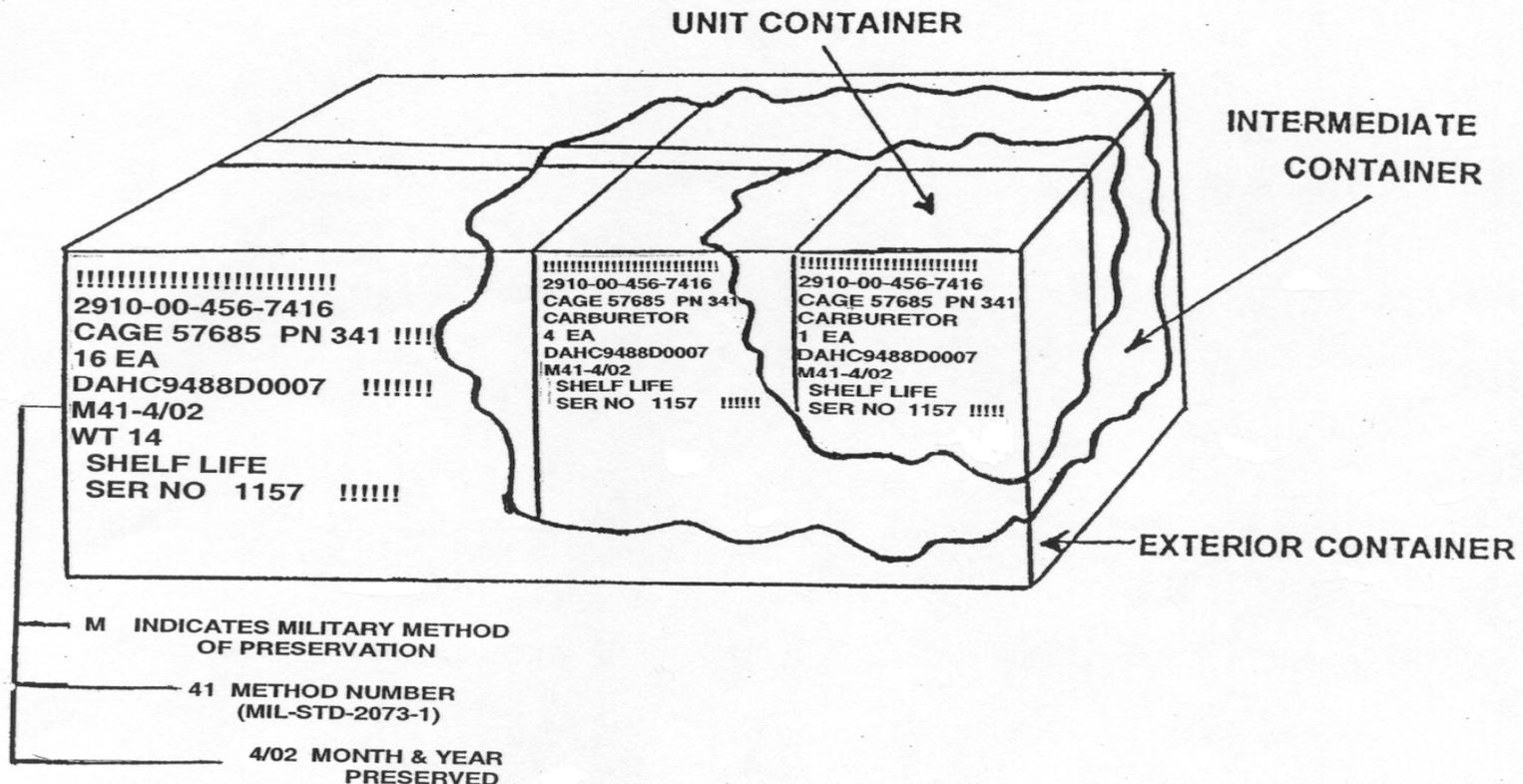
Preparation For Shipment & Storage:

- Involves long term outside storage in adverse environments.
- For short term administrative outside storage or placement into a controlled humidity facility.
- Disassembly procedures, clearance requirements, stowage provisions, and transportation handling.
- Prevent environmentally induced corrosion, deterioration and forms of degradation.
- For further guidance reference MIL-STD-3003B and TM 38-470 for additional instruction.



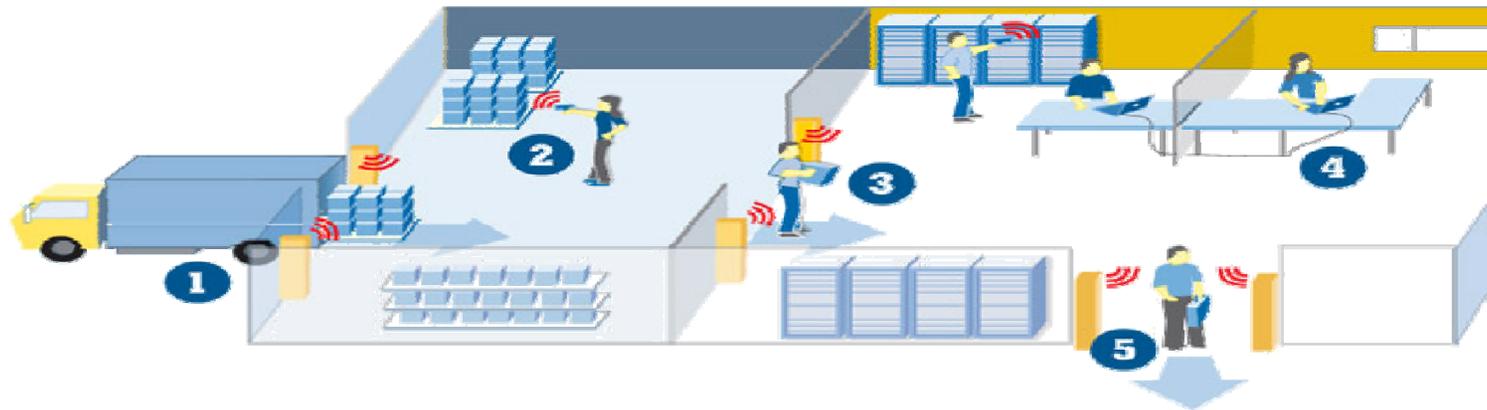
Marking Requirements

MIL-STD-129 provides minimum requirements for uniform military marking for shipment and storage.





Radio Frequency Identification (RFID)



Automating with RFID

- 1 Automatically receive tagged assets
- 2 Achieve real-time, perpetual inventory
- 3 Know when assets move or automate check-out processes
- 4 Receive asset updates, status and alert notifications
- 5 RFID can help prevent theft or unauthorized moves

RFID is an automatic data capture device that utilizes a radio-frequency wave technology to transfer data between a reader and a movable item. RFID provides fast, reliable reading and does not require physical sight nor contact with tagged item.

A great guide to use is the *United States Department of Defense Suppliers' Passive RFID Information Guide*
http://www.acq.osd.mil/log/rfid/r_suppliers_guide.html

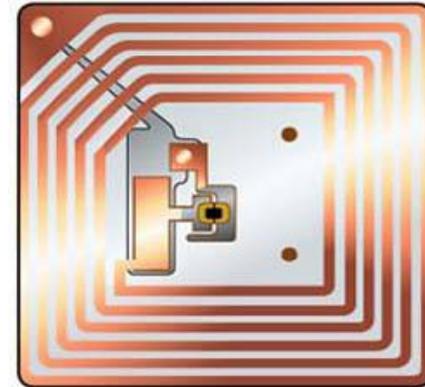


Two Types of RFID Tags

Active Tags



Passive Tags



Active RFID

- **All freight containers, consolidated air pallets and large engine containers shipped to and from overseas DoD receiving points**

Passive RFID

- **Cases, pallets of materiel (repair parts, clothing, textiles, MREs) shipped to primary DoD receiving points**



Wood Packaging Material (WPM)



- **WPM** is non-manufactured wood products such as dimensional lumber, wood pallets, wooden boxes and dunnage. It does not include manufactured wood products such as plywood and particle board.
- Due to an increased risk of pest infestation, a global set of measures has been accepted and are to be applied to WPM.
- The DoD has responded with the release of **DoD 4140.01-M-1** “*Compliance for Defense Packaging: Phytosanitary Guidelines for Wood Packaging Material*”. In accordance with this guideline all WPM shall be treated and certified pest free.
- One of the many pest invasions associated with WPM is from the Asian long horned beetle. First discovered in the United States in 1996, damage from the beetle has resulted in the removal of thousands of trees and by the end of 2004, has cost state and federal governments nearly \$168 million
- Make sure all heat treated wood is **marked properly**.



Asian long horned beetle



Nematode



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Hazardous Material (HAZMAT)

- When shipping hazardous materials make sure all HAZMAT items are packaged in certified Performance Oriented Packaging (POP), which is marked with a UN code. POP complies with the most stringent procedures and performance standards
- Packaging passes tests prescribed by the U.S. Department of Transportation in Code of Federal Regulations (CFR) 49. Other Regulations include: Air Force Manual (AFMAN), International Maritime Dangerous Goods (IMDG), and International Air Transport Association (IATA).
- Packaging must have the MSDS sheets as well as any test reports that certified the Performance Oriented Packaging.
- Make sure proper labeling is reflected.
- If possible, always ship HAZMAT items separately, so the whole system doesn't become hazardous.



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