

DEFENSE LOGISTICS AGENCY

AMERICA'S COMBAT LOGISTICS SUPPORT AGENCY

DLA LAND AND MARITIME



Packaging Overview

WARFIGHTER
FIRST

PEOPLE &
CULTURE

FINANCIAL
STEWARDSHIP

PROCESS
EXCELLENCE

STRATEGIC
ENGAGEMENT



Agenda



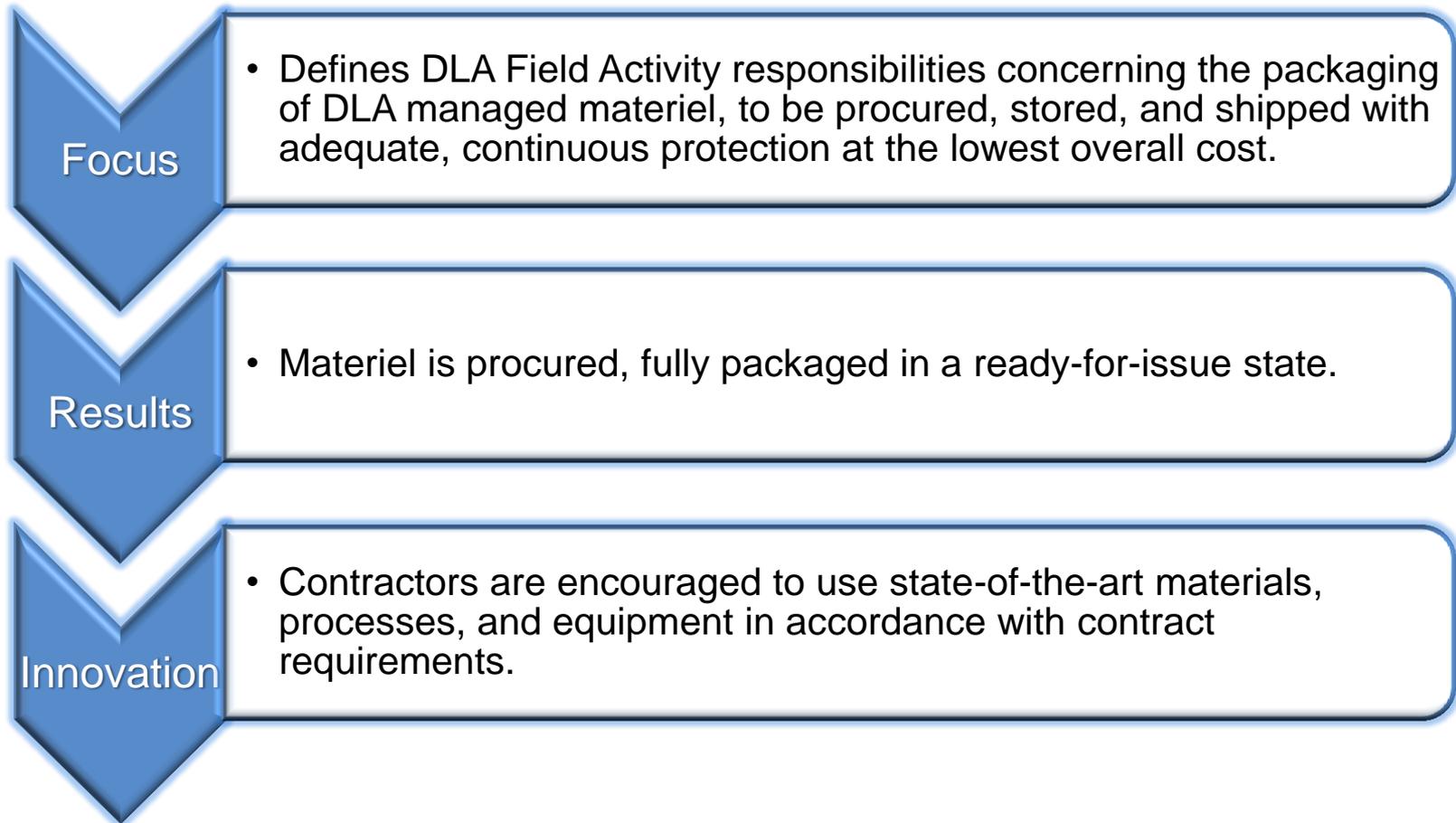
- **DLA Packaging Overview**
- **Contacts**
- **Packaging Requirements (MIL-STD-2073)**
 - *Packaging Codes Decoded*
 - *Preservation Methods*
 - *Quantity Unit Pack (QUP)*
 - *Intermediate Container Quantity (ICQ)*
- **Military Marking (MIL-STD-129)**
- **Wood Packaging Material (WPM)**
- **Electrostatic Discharge (ESD)**
- **Lead Free Requirements (E-code)**
- **Commercial Packaging (ASTM D3951)**
- **Reports of Discrepancies**
- **Resources**



DLA Packaging Overview



Defense Logistics Agency Packaging Program





Packaging Overview



DLA Demand/Supply Chains

Aviation	Land	Maritime	C&T	Medical	Subsistence	C&E	Energy
Richmond	Columbus		Philadelphia				Ft. Belvoir
<ul style="list-style-type: none"> • Aviation Original Equipment Manufacturer (OEM) Items • Engines & Airframes • Aviation Supply Chain Commodities 	<ul style="list-style-type: none"> • Wheeled Vehicles • Tracked Vehicles  • Batteries • Nuts & Washers • Converters 	<ul style="list-style-type: none"> • Valves/Hardware • Fluid Handling • Electronics • Motors • Packing/Gaskets  	<ul style="list-style-type: none"> • Recruit Clothing • Organizational Clothing Equipment  	<ul style="list-style-type: none"> • Pharmaceutical • Medical/Surgical Equipment  	<ul style="list-style-type: none"> • Institutional Feeding • Operations Rations • Produce  	<ul style="list-style-type: none"> • Construction • Equipment  	
EBS							FAS



Contacts



DLA Packaging Home Page -
<http://www.dla.mil/LandandMaritime/Offer/Services/TechnicalSupport/Logistics/Packaging.aspx>

<http://www.dla.mil/LandandMaritime/Offer/Services/TechnicalSupport/Logistics/Packaging/ShippingDoc.aspx>

Packaging – Points of Contact

<http://www.dla.mil/LandandMaritime/Offer/Services/TechnicalSupport/Logistics/Packaging/PackPOC.aspx>

List of Packaging Contacts for Specific Federal Stock Class Assignments

Please use Team email and phone line for general packaging assistance



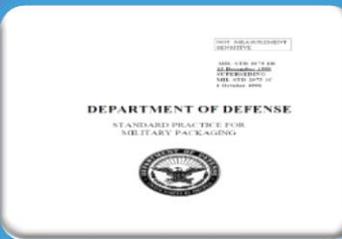
For all **delivery, transportation, shipping, and transportation control number (TCN) questions**, contact DLA Transportation at 1-800-456-5507 or email delivery@dla.mil.



Packaging

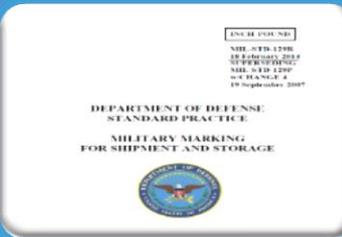


Preservation, Packaging, Packing, and Marking



MIL-STD-2073

- Standard Practice for Military Packaging
- Preservation, packaging, packing, and special marking requirements
- Appendix J decodes packaging data
- Required for long-term storage and/or items with specific protection needs that cannot be met with commercial practices
- Clause DLAD 52.211-9033 (Packaging and Marking) links to this document
- Free document to download



MIL-STD-129R

- Military Marking for Shipment and Storage
- Department of Defense uniformed marking requirements
- Clause DLAD 52.211-9010 (shipping label requirements) links to this document
- Required marking for all DoD shipments to identify material and trace back to contractor
- Free document to download



ASTM D3951

- Standard Practice for Commercial Packaging
- Establishes minimum requirements for packaging of supplies and equipment
- Package design must facilitate multiple handling, shipment by any mode, and storage for minimum of one year in enclosed facility without damage to the product.
- Unit package must also be ready for issue and redistribution without any additional packaging and/or marking.
- Copyright protected – must purchase this document
- NOTE: Only applicable when an acquisition document references this document solely.

Download military documents free at: <http://quicksearch.dla.mil/>



MIL-STD-2073



WHY?



Development of codes are determined by item characteristics (e.g. *physical, chemical, fragility factor, destination considerations, etc.*)



Coded packaging data is for items going into the Military Distribution Cycle – required to protect parts for world-wide shipment, long-term storage, and/or against severe environmental conditions (e.g. extreme climate, terrain, operational, and transportation environments)



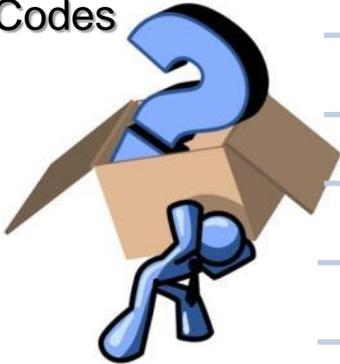
Information contained on solicitations and awards specifying the packaging coded data required to protect item throughout the life cycle (*Section B, on solicitations and awards*)



Example of Requirements



MIL-STD-2073
Packaging
Codes



001 = Quantity Unit Pack (QUP)

41 = Method of Preservation (MOP)

1 = Cleaning/Drying

00 = Preservative Material

00 = Wrapping Material

NA = Cushioning/Dunnage Material

A = Cushioning/Dunnage Thickness

BS = Unit Container

M = Optional Indicator Code (OPI)

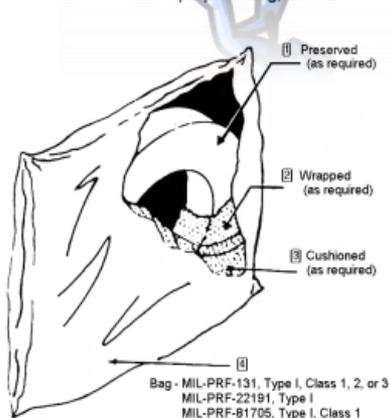
Q = Pack Code

E5 = Intermediate Container (IC)

012 = Intermediate Container Quantity (ICQ)

32 = Special Marking Code – Type I Shelf-life

Method 41 - Watervaporproof Bag, Sealed



Decode Tool: https://camphill.leidos.com/code_lookup.nsf/codecheck



QUP and Unit of Issue



➤ Unit of Issue is in Contract, Section B

<u>CLIN</u>	<u>PR</u>	<u>PRLI</u>	<u>U/I</u>	<u>Quantity</u>	<u>Unit Price</u>	<u>Total Price</u>
0001	0040888212	0001	PR	15	\$113.05	\$1695.75

➤ QUP & Packaging Data is in Contract, Section B – Prep for Delivery

PKGING DATA – MIL-STD-2073-1D, 15 DEC 1999

QUP = 001: PRES MTHD = 41: CLNG/DRY = 1: PRESV MAT = 00:
WRAP MAT = 00: CUSH/DUNN MAT = NA: CUSH/DUNN THKNESS = A:
UNIT CONT = BS: OPI = M: INTRMDTE CONT = E5: INTRMDTE CONT
QTY = 012: PACK CODE = Q:

MARKING SHALL BE IN ACCORDANCE WITH MIL-STD-129.
SPECIAL MARKING CODE: 32 – Type I Shelf Life

PALLETIZATION SHALL BE IN ACCORDANCE WITH MD00100452
REV B DATED 8183

Ref: Contract, Section B



Basic Methods of Preservation



- Method 10 Physical & Mechanical protection only
- Method 20 Preservative coating requirement
- Method 30 Waterproof and/or greaseproof protection
- Method 40 Watervapor proof protection
- Method 50 Watervapor proof protection w/desiccant



Helpful Information from DLA Packaging Web Site:

<http://www.dla.mil/LandandMaritime/Offers/Services/TechnicalSupport/Logistics/Packaging/PresMthds.aspx>



Specialized Preservation



Table J.1a, Specialized Preservation Codes *21 codes for various specialized preservation*

“GX”

- Denotes part is sensitive to electrostatic discharges (ESD) and/or electromagnetic interference (EMI)
- Requires an ESD Control Program
- Shall be handled at an ESD Workstation
- Shall only use “Approved” packaging materials by “Qualified” Sources
- Requires ESD label for users to be aware of special handling requirements
- Failure to comply with “GX” requirements can either damage part or cause latent failure.
- Compromised parts shall be returned to vendor

“HM”

- Denotes a regulated by transportation Hazardous Material
- Packaging and marking in accordance with applicable hazardous material (HAZMAT) regulations
- Performance-Oriented Packaging (POP) certified containers
- Packers shall be certified to package and mark hazardous material per Title 49 Code of Federal Regulations

Learn more about ESD/EMI from the DLA Packaging Web Site:

<http://www.dla.mil/LandandMaritime/Offers/Services/TechnicalSupport/Logistics/Packaging/PackFAQs/ESDS.aspx>



QUP and Unit of Issue



Factors for Determining Military Packaging Quantity Unit Pack (QUP):

• QUP of one:

- Repairable items, items valued \$50 or more,
- Items packed in accordance with method of preservation 50, irregular shaped, delicate or fragile items.
- Items with a unit of issue of pair (PR), set (SE), or kit (KT) (see paragraph B.3.1 – B.3.6).

• QUP more than one:

- Formulas based upon item weight, dimensions, cost, and method of preservation (see paragraphs B.3.8 – B.3.8.2, and Table B.4.1 or B.4.2).

Determining Quantities per Intermediate Container Quantity (ICQ):

• ICQ Maximums:

- 100 unit packs per intermediate container
- 40 pounds
- 1.5 cubic feet with at least two dimensions not exceeding 16 inches

• Intermediate Container Limitations:

- When quantity shipped to a single destination is less than the established ICQ, then place all unit packs in a minimum size shipping container.
- When the contract/order total quantity is more than established IQC. Pack as many intermediate containers to the established ICQ; and the remaining quantity in smallest container to accommodate these unit packs.

Learn more about Unit of Issue from the DLA Packaging Web Site:

<http://www.dla.mil/LandandMaritime/Offers/Services/TechnicalSupport/Logistics/Packaging/Definitions.aspx>

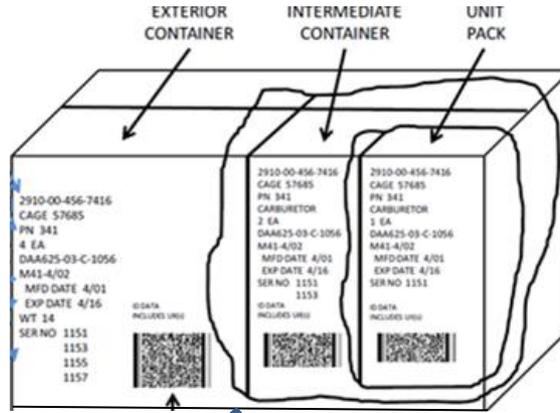


MIL-STD-129 Marking



Identification

- MIL-STD-129 marking is mandatory for all locations.



Special Marking

- MIL-STD-2073 (page 176) provides a complete listing of all special marking codes.



Discover more information about special marking:

<http://www.dla.mil/LandandMaritime/Offers/Services/TechnicalSupport/Logistics/Packaging/PackSpecsStds.aspx>



Unit and Intermediate Marking



Ref: MIL-STD-129, Figure 1 (page 23)

MIL-STD-129R Checklist for Identification & Bar code marking on Unit packs and Intermediate containers.

Order of Markings *****Check blocks to confirm order*****	
<input type="checkbox"/>	1. NSN/NATO stock number. If no NSN is assigned, then this line may be omitted
<input type="checkbox"/>	2. CAGE code
<input type="checkbox"/>	3. Part Number. The letters "PN" or "P/N" shall be used to identify this information. If the item has no PN assigned to it or if no PN is cited, then nothing is shown
<input type="checkbox"/>	4. Item description or nomenclature. The exact name and description of an item as it appears in the contract, purchase order or requisition shall be shown
<input type="checkbox"/>	5. Quantity and UI. A non-definitive UI shall be accompanied by a quantitative expression such as "1 RO (100 FT)"
<input type="checkbox"/>	6. Contract number or purchase order number (Procurement Instrument Identification Number (PIIN)) including four-digit delivery order or call number, modification for change order number. The in-the-clear contract number will include the dashes as shown in the contract, i.e., DAAB07-96-C-1234
<input type="checkbox"/>	7. Military preservation method and date of unit preservation (e.g., "M41-4/02" - method 41, in April 2002). To reflect commercial packaging (ASTM-D3951), DLA uses "MCP". If a preservation date doesn't apply, the pack date will be shown
<input type="checkbox"/>	8. Shelf-life markings, (if applicable - see 5.10.1)
<input type="checkbox"/>	9. Serial number(s). When an item is assigned a serial number, that number shall be applied and preceded by the abbreviation "SER NO" (see 5.4.1.1.1).
<input type="checkbox"/>	10. Bar code markings - NSN & CAGE, if required 2D (PDF417) & serial no. (see MIL-STD-129, paragraph 5.4.1.1 & Figures 17-19).

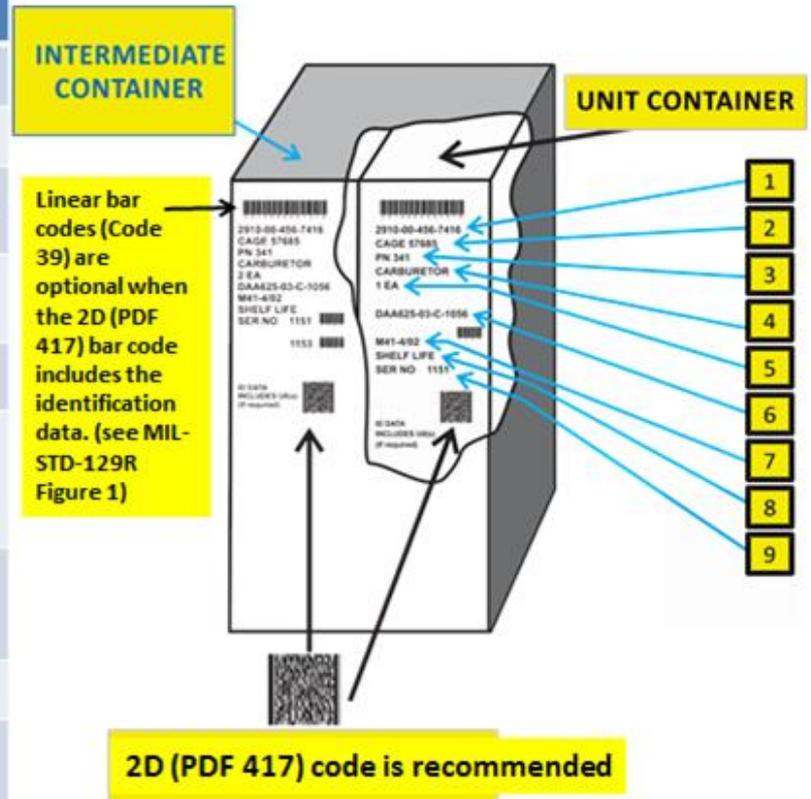


FIGURE 1: Example of Unit Pack and Intermediate Container ID Markings (including an example of bar code markings)
NOTE: See MIL-STD-129R, paragraph 5.1 - 5.1.1 for details



Exterior Container Marking



Ref: MIL-STD-129, Figure 1 (page 23)

Order of Markings *****Check blocks to confirm order*****	
<input type="checkbox"/>	a. NSN/NATO stock number. If no NSN is assigned, then this line may be omitted
<input type="checkbox"/>	b. CAGE code
<input type="checkbox"/>	c. Part Number. The letters "PN" or "P/N" shall be used to identify this information. If the item has no PN assigned to it or if no PN is cited, then nothing is shown
<input type="checkbox"/>	d. Quantity and UI. A non-definitive UI shall be accompanied by a quantitative expression such as "1 RO (100FT)"
<input type="checkbox"/>	e. Contract number or purchase order number (Procurement Instrument Identification Number (PIIN)) including four-digit delivery order or call number, modification for change order number. The in-the-clear contract number will include the dashes as shown in the contract, i.e., DAAB07-96-C-1234
<input type="checkbox"/>	f. Military preservation method and date of unit preservation (e.g., "M41-4/02" - method 41, in April 2002). To reflect commercial packaging (ASTM-D3951), DLA uses "MCP". If a preservation date doesn't apply, the pack date will be shown
<input type="checkbox"/>	g. Gross weight. The capital letters "WT" shall precede the gross weight. The gross weight will be expressed in pounds rounded up to the nearest pound
<input type="checkbox"/>	h. Shelf-life markings, (if applicable - see MIL-STD-129, paragraph 5.10.1)
<input type="checkbox"/>	i. Serial number(s). When an item is assigned a serial number, that number shall be applied and preceded by the abbreviation "SER NO"
<input type="checkbox"/>	j. Bar code markings - NSN & CAGE, if required 2D (PDF 417) & serial no. (see MIL-STD-129, paragraph 5.4.1.2 & Figures 1, 15, 22, 25).
<input type="checkbox"/>	k. RFID tags - required for exterior/shipping containers & pallet loads (not shown in illustration, see MIL-STD-129, paragraph 5.9.1)

MIL-STD-129 Checklist for Identification Marking on Exterior Containers and Unpacked items

The diagram illustrates the marking requirements for three levels of packaging: Exterior Container, Intermediate Container, and Unit Pack. A vertical column of yellow boxes labeled 'a' through 'i' has arrows pointing to the corresponding marking fields on the exterior container. The unit pack also shows its own set of markings, including a 2D (PDF 417) code. A yellow callout box states: "2D (PDF 417) code is recommended".

FIGURE 2: Example of Unit Pack, Intermediate and Exterior Container ID markings (No linear (code 39) bar code markings shown since 2D (PDF 417) bar code includes the identification data).



Linear Bar Codes



MIL-STD-129R
Figure 1, note
(page 23) states:
“Linear bar codes
are optional when
the 2D (PDF417)
bar code includes
the identification
data.”

Unit pack, intermediate container and exterior container identification markings,
including bar code markings.

EXTERIOR CONTAINER

2510-01-245-7895
CAGE 78412
PN 56734-89
24 EA
SP0700-03-M-4567
M31 - 10/03
WT 22



2510012457895



SP070003M4567



78412

INTERMEDIATE CONTAINER

2510012457895
2510-01-245-7895
CAGE 78412
PN 56734-89
BRACKET, HOOD
6 EA
SP0700-03-M-4567
M31 - 10/03



2510012457895

UNIT CONTAINER

2510012457895
2510-01-245-7895
CAGE 78412
PN 56734-89
BRACKET, HOOD
1 EA
SP0700-03-M-4567
M31 - 10/03



2510012457895

****NOTES****

1. WHEN A CALL NUMBER IS PART OF THE CONTRACT, THE CALL NUMBER MUST BE INCLUDED AS PART OF THE CONTRACT NUMBER.
2. ILLUSTRATIONS ARE TO BE USED AS EXAMPLES ONLY. LABELS, PRINT DIMENSIONS, AND SPACING MAY VARY, BUT THE FORMAT SHOULD BE ADHERED TO. ACTUAL MARKINGS (NSN, P/N, etc.) WILL VARY PER CONTRACT/ORDER.



Military Shipping Label



The recommended MSL size is 4 by 6 inches.

TCN SW81238350D001XXX			
From SW8123 In-the-clear Address 3 Lines Max, 35 Characters Per Line XXXXXXXXXX1XXXXXXXXXX2XXXXXXXXXX3XXXXXX		TAC / Type Service / Postage SZZZ Frt LTL	
Piece 1 Of 1	Weight (lb.) 7760	Date Shipped 1090	RDD 999
	Cube (ft.) 385	Project 9BU	Priority 1
Ship To / POE DOV	In-the-clear Address 5 Lines Max, 35 Characters Per Line Abcdefg HigiKlmno Pqrstuv Wxyz Abcdefg HigiKlmno Pqrstuv Wxyz XXXXXXXXXX1XXXXXXXXXX2XXXXXXXXXX3XXXXXX		
POD RMS	MSL, Supply, & TCMD Data 		
FMS Case CKM			
W55XGJ	Ultimate Consignee / Mark For Consignee Ultimate / Mark For Consignee Address 5 Lines Max, 35 Characters Per Line Abcdefg HigiKlmno Pqrstuv Wxyz Abcdefg HigiKlmno Pqrstuv Wxyz XXXXXXXXXX1XXXXXXXXXX2XXXXXXXXXX3XXXXXX		

Code 39

- Code 39 (Linear)
- TCN
- Piece number
- Ultimate consignee

2D

- Department of Defense Activity Address Code (DODAAC) PDF417 (2D)
- Shipment
- Line item
- TCMD data

Contact

- **Transportation Office:**
- **1-800-456-5507**
- **delivery@dla.mil**





ASTM D3951



- **First Destination Packaging Program**
 - Allows for selected items to be packaged in accordance with ASTM-D3951, *Standard Practice for Commercial Packaging*
- **Commercial packaging QUP:**
 - *ASTM-D3951, paragraph 5.1.2.2 governs Unit Package Quantity*
 - *Contract QUP takes precedence over ASTM D3951*
 - *Generally use QUP of 001 unless otherwise specified in your contract*
- **Commercial packaging ICQ:**
 - *ASTM-D3951, paragraph 5.1.3 governs Intermediate Package*
- **Commercial packaging “marking”:**
 - *ASTM-D3951, paragraph 5.1.6.5 governs markings for DoD shipments (**in accordance with MIL-STD-129**)*
 - *Mark Method of Pack for commercial packaging as “MCP”*
 - **Bar code** in accordance with AIM BC1
- **Wood Packaging Material (WPM)**
 - *ASTM-D3951, paragraph 5.1.6.4 governs compliance with ISPM Publication No. 15*



Wood Packaging Material



- **Why ISPM 15 for WPM?**

- To help reduce the risk of pest infestation, a global set of measures has been accepted and are to be applied to WPM.
- DOD responded to these requirements with the release of DOD 4140.65–M in order to gain access to aerial and water ports.
- Ensure WPM is in conformance with the *International Standards for Phytosanitary Measures Publication No. 15* (ISPM 15).

- **Requirement:**

- Heat-treated wood requirements in accordance with DLA contract clause 52.247-9012 – Requirements for Treatment of Wood Packaging Material (WPM) (7/2008), page 215:



- *All WPM shall be heat treated, including pallets, and marked accordingly with the heat-treated compliant mark, ISPM 15.* →



NOTE: Failure to comply may result in frustrated cargo and delayed payments. Contractor shall be responsible to pay for expenses to remedy **noncompliant WPM**. **UN countries** strictly enforce this requirement

Website:

<http://www.dla.mil/LandandMaritime/Offers/Services/TechnicalSupport/Logistics/Packaging/WoodPack.aspx>



Electrostatic Discharge (ESD)



Method of Preservation = GX

- **Wrap:** use MIL-PRF-81705, Type III
- **Reminder:** Type II no longer used
- **Cushioning:** four choices - A-A-3129, Type I, Grade B; or PPP-C-795, Class 2; or A-A-59135, Class 1, Grade B; or PPP-C-1797, Type II
- **Unit Container (Barrier):** MIL-DTL-117, Type I, Class F, Style 1 (MIL-PRF-81705, Type I, Class 1)

Approved sources of MIL-PRF-81705

- **Qualified Products List (QPL):**
 - **Type I:** Cadillac Products Packaging Co. (CADPAK ESD)/EDCO or Covalence Specialty
 - **Type III:** Caltex Plastics (CP STAT 100M) is the only MIL-PRF-81705E Type III qualified manufacturer.
- Be aware of non-approved material
- Check ASSIST Quick Search for QPLs at: <http://quicksearch.dla.mil/>



Website:

<http://www.dla.mil/LandandMaritime/Offers/Services/TechnicalSupport/Logistics/Packaging/PackFAQs/ESDS.aspx>



Electrostatic Discharge (ESD)



Special Marking Code

- 39 – ESD sensitive device requirements of MIL-STD-129 apply



Supplemental Packaging Instructions

- This item requires **DOD QUALIFIED** Electrostatic Discharge (ESD) protective packaging materials in accordance with **MIL-PRF-81705**. The supplier shall be responsible for verifying that all MIL-PRF-81705 barrier materials (or converted bags) were supplied from a qualified manufacturer currently listed on **QPL-81705**. For additional ESD packaging information, refer to the following DLA packaging web site:

<http://www.landandmaritime.dla.mil/Offices.packaging/ESD.aspx>

Website:

<http://www.dla.mil/LandandMaritime/Offers/Services/TechnicalSupport/Logistics/Packaging/PackFAQs/ESDS.aspx>



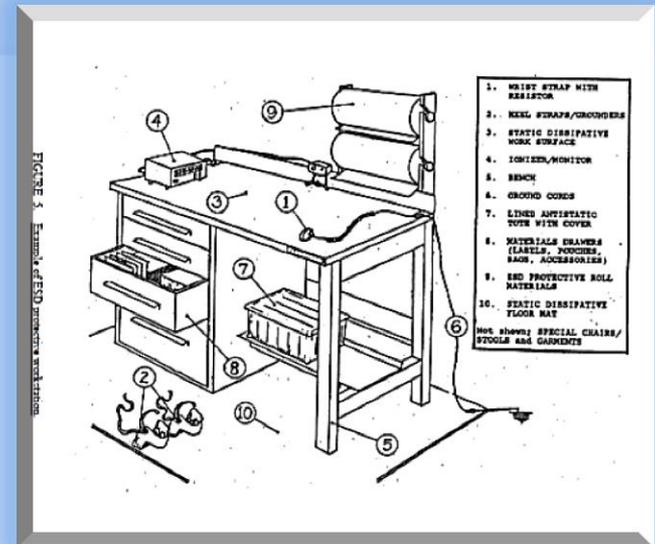
Electrostatic Discharge (ESD)



ESD Control Program – governed by MIL-STD-1686, *Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)*. This document applies to U.S. military agencies, contractors, subcontractors, suppliers, and vendors. It requires the establishment, implementation, and documentation of ESD Control programs for static sensitive devices. For additional ESD packaging information, refer to the following DLA packaging website as referenced below.

- **Special Workstation Requirements**

- **MIL-PRF-87893**, *Workstation, Electrostatic Discharge (ESD) Control*. This document defines requirements for ESD protective workstations.
 - ESD Workstation
 - Grounding straps
 - Furniture, mats, equipment, etc.
 - Special packaging materials
 - Clothing



Website:

<http://www.dla.mil/LandandMaritime/Offers/Services/TechnicalSupport/Logistics/Packaging/PackFAQs/ESDS.aspx>



Lead Free Requirements (E-code)



Legislated prohibitions on using or importing lead in electronic systems are causing manufacturers worldwide to transition from Tin-Lead (Sn-Pb) to Lead-free (Pb-free) solders and termination finishes.

DLAD Clause 52.211-9063, Unit Package Marking Requirement for Component Lead Finish, Applies.

- References: **IPC/JEDEC J-STD-609**, *Marking and Labeling of Components, PCBs and PCBAs to Identify Lead (Pb), Pb-Free and Other Attributes*
- Adopted by DoD on January 9, 2008

E-code markings applies to Federal Supply Classes (FSCs): 5905, 5910, 5945, 5961, and 5962



Reports of Discrepancies



Common types of noncompliance:

- Heat-treated wood requirements
 - *Not in accordance with DLA contract clause 52.247-9012 – Requirements for Treatment of Wood Packaging Material (WPM) (7/2008), page 215:*
 - *WPM (including pallets) is not heat treated and marked in accordance with the heat-treated compliant mark, ISPM 15.*
- ESD parts not packaged in compliance with method of preservation “GX”
 - ***Not packaged in DoD approved packaging materials by qualified manufacturers.***
 - ***Missing wrapping or cushioning material (must have one or the other inside barrier bag)***
 - ***Part punctured barrier bag***
 - ***Tape, staples, or rubber bands inside barrier bag.***
 - ***Barrier bag not sealed.***
- Marking problems
 - ***Multiple elements of MIL-STD-129 missing,***
 - ***Incorrectly labeled***
 - ***Not bar-coded***
 - ***Omission of e-code, shelf-life, or lot date code.***
- Preservation and Packing non-conformances
 - ***No authorization to substitute ASTM D3951 for military method of preservation (MOP)***



Samples of Discrepancies



Mistakes Seen





Resources



- Thomas Register: List of “Packaging Houses”
(DLA legally cannot endorse any specific “packaging house”)
<http://www.thomasnet.com/prodsearch.html?cov=NA&which=prod&what=Military+Packaging+houses&navsec=search>
- MIL-STD-2073 Packaging Code Interpreter:
https://camphill.leidos.com/code_lookup.nsf/codecheck
- ASSIST
ASSIST is the *official source* for specifications and standards used by the Department of Defense.
<http://quicksearch.dla.mil/>
- American Lumber Standard Committee (ALSC)
Wood Packaging Material (WPM) - Accredited Agencies
http://www.alsc.org/WPM_summary_mod.htm
- Joint Electron Device Engineering Council (JEDEC)
The technical voice of the semiconductor industry
<http://www.jedec.org/>
- National Institute of Packaging, Handling & Logistics Engineers (NIPHLE)
<https://niphle.com/>



Questions



Email: DSCC.packaging@dla.mil

Phone: 614-692-3345