

**Army Regulation 700–15
OPNAVINST 4030.2
AFMAN 24–206
MCO 4030.33F
DLAR 4145.7
DCMA–1101**

Logistics

Packaging of Materiel

**Headquarters
Departments of the Army,
the Navy, and the Air Force;
the Marine Corps,
the Defense Logistics Agency,
and the Defense Contract Management
Agency
Washington, DC
28 July 2020**

UNCLASSIFIED

SUMMARY of CHANGE

AR 700–15/OPNAVINST 4030.2/AFMAN 24–206/MCO 4030.33F/DLAR 4145.7/DCMA–1101

Packaging of Materiel

This administrative revision, dated 5 January 2023—

- o Removes Defense Ammunition Center and adds the Army Sustainment Command Packaging, Storage, and Containerization Center (para 2–3b(2)).
- o Identifies the Army Sustainment Command Packaging, Storage, and Containerization Center as a Department of Defense source for military packaging training (para 2–4c).

This administrative revision, dated 7 February 2022—

- o Corrects Navy nomenclature per staffing comments of December 2020 (cover page).

This administrative revision, dated 16 November 2021—

- o Adds the Defense Contract Management Agency to the issuing headquarters (cover).
- o Adds the Defense Contract Management Agency signature authority to the signature block (title page).
- o Adds “DCMA–1101” to publication nomenclature (throughout).

This administrative revision, dated 3 December 2020—

- o Removes the Defense Contract Management Agency signature authority from the signature block (cover page).
- o Corrects the Headquarters block and erroneous nomenclature to Navy’s information (throughout).
- o Removes “DCMAR 4145.X” from pub nomenclature (throughout).

This administrative revision, dated 4 August 2020—

- o Updates the issuing headquarters (cover page).

This major revision, dated 28 July 2020—

- o Retains packaging development and packaging, handling, storage, and transportation support responsibilities as part of the engineering support function performed at the inventory control point (para 1–4).
- o Requires packaging, handling, storage, and transportation Logistics Element Manager Participation in contractors’ and Government’s system engineering, logistics, and technical data management processes during every milestone of all acquisition or upgrade programs (para 1–4).
- o Establishes a requirement for military packaging training for civilians, military, and contractors performing packaging functions (para 2–1).
- o Requires military packaging to be developed as a baseline for all items (para 3–1).

- o Requires packaging development and item characteristic data to be procured from commercial sources at time of acquisition (para 3–2).
- o Establishes automatic identification technology requirements to improve asset management through item unique identification and to enhance asset visibility while in-transit through radio frequency identification technologies (para 3–2).
- o Identifies mandatory International Standards for Phytosanitary Measures for wood packaging material to reduce the risk of introduction or spread of pests associated with wood packaging material (para 3–4c).
- o Lists guidelines for use by Service’s or agencies’ technical authorities to determine type of packaging to be used (para 5–1).
- o Requires repair parts and components to be preserved and packaged in accordance with Military Standard 2073–1E (para 5–3).
- o Emphasizes using retrograde materiel packing instructions in accordance with military standards to protect not-ready-for-issue assets from additional costly damage while in-transit or in storage (para 5–5).
- o Requires Department of Defense components to recover reusable containers and use the minimal packaging necessary for items transferring to disposal activities (para 5–8).
- o Requires Department of Defense Services and activities to establish metrics to evaluate performance and cost of packaging operations and to develop procedures to measure and report results (chap 7).

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OPNAVINST 4030.2
AFMAN 24–206
MCO 4030.33F
DLAR 4145.7
DCMA–1101
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Logistics Packaging of Materiel

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History. This publication is an administrative revision. The portions affected by this administrative revision are listed in the summary of change.

Summary. This regulation implements DoDM 4140.01, Volume 9, and it establishes policies and procedures and assigns responsibilities for managing packaging requirements, specifications, levels of protection, and project information exchange requirements.

Applicability. This regulation applies to the Regular Army, the Army National Guard/Army National Guard of the United States, and the U.S. Army Reserve. It applies to all Department of Defense Services (active and reserve), agencies, and activities responsible for the packaging of materiel throughout its life cycle. This regulation is applicable during full mobilization.

Proponent and exception authority. The proponent of this regulation is the Deputy Chief of Staff, G–4. The proponent has the authority to approve

exceptions to this regulation that are consistent with controlling law and regulations. The proponent may delegate this approval authority, in writing, to a division chief within the proponent agency or its direct reporting unit or field operating agency, in the grade of colonel or the civilian equivalent. Activities may request a waiver to this regulation by providing justification that includes a full analysis of the expected benefits, and it must include formal review by the activity's senior legal officer. All waiver requests must be endorsed by the commander or senior leader of the requesting activity and forwarded through their higher headquarters to the policy proponent. Refer to Army Regulation 25–30 for specific guidance.

Army internal control process. This regulation contains internal control provisions in accordance with AR 11–2 and identifies key internal controls that must be evaluated (see appendix B).

Supplementation. Supplementation of this regulation and establishment of agency, command, and installation forms

are prohibited without prior approval from the Deputy Chief of Staff, G–4 (DALO–SPS), Washington, DC 20310–1546. Commands and agencies may supplement this regulation according to applicable Service and Defense Logistics Agency directives.

Suggested improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to the Deputy Chief of Staff, G–4 at DCS, (G–4, DALO–SPS), 500 Army Pentagon, Washington, DC 20310–5000.

Distribution. This publication is available in electronic media only and is intended for the Regular Army, the Army National Guard/Army National Guard of the United States, and the U.S. Army Reserve; Distribution for Navy: Special; Air Force: F; Marine Corps: MARCORPS. PCN 10204130000.

*This publication supersedes AR 700–15/NAVJUPINST 4030.28E/AFJMAN 24–206/MCO 4030.33E/DLAR 4145.7, dated 12 January 2004.

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Chapter 1

Introduction

1–1. Purpose

This regulation implements DoDM 4140.01, Volume 9, which establishes overall Department of Defense (DoD) packaging requirements and procedures. The policies and procedures contained in this regulation have been coordinated through the Defense Packaging Policy Group (DPPG); they establish joint policies for all DoD components by developing uniform requirements for packaging of materiel, including ordnance, and they provide uniform procedures for applying packaging requirements throughout the total life cycle, including acquisition, distribution, and sustainment. This regulation establishes military packaging focus areas to leverage joint functional expertise and maximize DoD personnel and equipment efficiencies associated with key packaging areas.

1–2. References and forms

See appendix A.

1–3. Explanation of abbreviations and terms

See glossary.

1–4. Responsibilities

a. Secretaries of the Army, the Air Force, and the Navy; the Commandant of the Marine Corps; and the directors of the Defense Logistics Agency (DLA) and Defense Contract Management Agency will—

- (1) Comply with policies, objectives, and guidelines in this Joint regulation.
- (2) Ensure compliance with the requirements of MIL–STD–2073–1E.
- (3) Ensure project information is available for exchange.
- (4) Comply with occupational safety and health program guidelines.
- (5) Ensure that packaging development and support responsibilities are part of the engineering support function retained by a Service during partial inventory control point (ICP) function transfer to another Service or agency.
- (6) Identify packaging positions requiring training, assess current and future packaging training needs, and allocate time and funding for packaging training.
- (7) Budget and fund the following packaging, handling, storage, and transportation (PHS&T) efforts:
 - (a)* DPPG representation and Service packaging boards or committees.
 - (b)* Packaging and item characteristics data required for the development, design, and sustainment of packaging support throughout the life cycle of the item and its associated weapon system.
 - (c)* Packaging associated with the procurement and repair of supplies, materials, and equipment.
 - (d)* PHS&T Logistics Element Manager (LEM), support.
 - (e)* Design, development, acquisition, reprourement, and maintenance of reusable containers.
 - (f)* Packaging or repackaging of items in storage.
 - (g)* Preparing stock for shipment or issue as part of a normal supply support operation.
 - (h)* Protection of mandatory turn-in of repairable materiel from damage during transit.
 - (i)* Packaging of materiel being turned in.
 - (j)* Packaging of materiel being returned due to platform or weapon system deactivation.
 - (k)* Packaging of operational equipment removed from active platforms or weapon systems.
 - (l)* Packaging of items or components removed from stored or stricken weapon systems.

b. On behalf of the Assistant Secretary of the Army (Acquisition, Logistics and Technology), the Assistant Secretary of Defense, Logistics, and Material Readiness, will—

- (1) Oversee the DPPG.
 - (2) Provide or direct funding for joint PHS&T initiatives.
- c.* Major weapons systems program acquisition support's program managers will—
- (1) Ensure that the PHS&T acquisition logistics element is an integral part of their program's planning, budgeting, and execution.
 - (2) Evaluate PHS&T during the weapon system's technology-development phase and continue to review and monitor it throughout the life cycle of the program.

(3) Assign a PHS&T LEM to all acquisition-category weapon systems' acquisition programs to ensure that packaging development is concurrent with the engineering effort and that storage and transportation requirements are planned for.

(4) Ensure that all contractor-developed packaging data is reviewed and approved by the managing packaging activity.

d. PHS&T LEMs will—

(1) Evaluate the weapons systems' and components' design susceptibility to damage from shock, vibration, corrosion, and electrostatic discharge (ESD) during the weapon systems' design phase.

(2) Ensure compatibility of distribution systems, warehousing, long-term storage, transportation (all modes), and DoD operational environments.

(3) Consider program requirements for reusable container designs, hazardous materials (HAZMAT) requirements, technical data requirements, special storage and shelf-life requirements, marking, automatic identification technology (AIT), and radio frequency identification (RFID) compatibility for asset tracking.

(4) Ensure each contract has military packaging requirements developed in-house or by contractors.

(5) Ensure the validation of in-the-clear military packaging requirements (including special packaging instructions (SPIs) and coded packaging requirements) accords with MIL-STD-2073-1E and retains packaging requirements for sustainment and procurement actions.

e. Commanders of DoD shipping or storage activities will—

(1) Comply with policies, objectives, and guidelines stated in this Joint regulation.

(2) Protect materiel in storage in accordance with paragraph 5-4.

(3) Protect retrograde and returned materiel in accordance with paragraph 5-5.

(4) Identify packaging positions requiring training, assess current and future packaging training needs, and allocate time and funding for packaging training.

1-5. Records management (recordkeeping) requirements

The records management requirement for all record numbers, associated forms, and reports required by this regulation are addressed in the Records Retention Schedule-Army (RRS-A). Detailed information for all related record numbers, forms, and reports are located in Army Records Information Management System (ARIMS)/RRS-A at <https://www.arims.army.mil/>. If any record numbers, forms, and reports are not current, addressed, and/or published correctly in ARIMS/RRS-A, see DA Pam 25-403 for guidance.

Chapter 2 Training

2-1. General

DoD components must have a trained workforce with functional knowledge in the latest and most effective concepts and techniques of military packaging. This includes policies, procedures, design criteria, application, verification, or inspection techniques used to protect DoD materiel from deterioration or degradation during storage, multiple handlings, and shipment associated with the military distribution system.

2-2. Packaging specialties

Training for personnel with functional packaging duties falls within the following five areas:

a. Preservation and packing (P&P) includes, but is not limited to, civilian and military personnel performing the P&P at forts, bases, and distribution centers. Contractors may perform these duties on behalf of the DoD.

b. Requirements development and interpretation includes, but is not limited to, personnel developing the technical data package baseline packaging requirements during weapon system development, contract awards, and technicians performing validation testing of baseline packaging requirements. Contractors may perform these functions on behalf of the DoD.

c. Verification or inspection includes, but is not limited to, personnel that conduct care-of-supplies-in-storage inspections and that validate compliance with contract packaging requirements either at contractor plants or at time of receipt at forts, bases, and distribution centers.

d. PHS&T LEMs, component staff, testing engineers, or subject matter experts include, but are not limited to, personnel assigned responsibility for developing policy, testing parameters, packaging training, and procedures for packaging functions.

e. HAZMAT certification.

2-3. Requirements

Military packaging training must be as follows for each packaging specialty:

Note. Further training for each area must be completed within the first 2 years in the position or within 2 years of the date of this revision if already assigned to one of the identified functional areas.

a. Preservation and packing.

(1) Defense Ammunition Center (DAC) class number PACK-1A-DL; Defense Basic Preservation and Packaging (Phase 1), course number 8A-F63/551-F55 (DL); and class number PACK-1B, Military Preservation and Packaging for Storage and Shipment (Phase 2), course number 8A-F61/551-F53. School of Military Packaging Technology (SMPT) 8B-F1 and SMPT 8B-F2 classes will be accepted as suitable alternatives to DAC's PACK-1A-DL and PACK-1B if they are approved by the individual's management or immediate supervisor; however, if SMPT classes are no longer available. The courses consist of the following elements as a minimum:

- (a) Basic preservation, packing, blocking and bracing, and unitization.
- (b) Marking for shipment and storage.
- (c) MIL-STD-2073-1E code or requirements interpretation.
- (d) Packaging and handling of ESD sensitive items.
- (e) Interpretation and understanding of military specifications and nongovernment standards.
- (2) DoD wood packaging materials (WPM) web-based training course at <https://tarp.navsup.navy.mil/>.

b. Requirements development.

(1) Prerequisite is listed at paragraph 2-3a.

(2) Army Sustainment Command (ASC) Packaging, Storage, and Containerization Center (PSCC) PACK 2, Military Packaging Design course (01PSCC-PK02). SMPT 8B-F16, Defense Packaging Design, is an acceptable substitute for PACK 2. PACK 2 consists of the following elements as a minimum:

- (a) MIL-STD-2073-1E requirements development.
- (b) Packaging design.
- (c) Advanced preservation and packing.
- (3) Defense Acquisition University (DAU) Continuous Learning Logistics 013, DoD Packaging course.

c. Verification or inspection.

(1) Prerequisites are listed in paragraphs 2-3a and 2-3b.

(2) On-the-job training or courses in the following subjects, as determined by the employee, training manager, and supervisor:

- (a) MIL-STD-2073-1E, quality assurance provisions.
- (b) International Organization for Standardization 9000.
- (c) Discrepancy reporting.
- (d) Contracts interpretation.

d. Packaging, handling, storage, and transportation, logistics element manager, component staff, testing engineer, or subject matter expert.

(1) Prerequisites are listed in paragraphs 2-3a and 2-3b.

(2) Defense Acquisition Workforce Improvement Act, Life Cycle Logistics, and level courses as appropriate for grade. If not an acquisition workforce position, then course ACQ 101, Fundamentals of Systems Acquisition Management, and LOG 101, Acquisition Logistics Fundamentals, are a minimum requirement.

(3) LEM training as determined by the employee, training manager, and supervisor.

e. Hazardous materials certifier.

(1) Prerequisite is listed in paragraph 2-3a.

(2) Personnel involved with the preparation and shipment of HAZMAT for DoD must be trained in accordance with Defense Transportation Regulation (DTR) 4500.9-R, Part II; Part 172, Title 49, Code of Federal Regulations (49 CFR); and DoD component regulations. Personnel must be appointed in writing.

2-4. Training sources

a. The DAC in McAlester, Oklahoma, is the DoD prime source for military packaging training. DAC offers resident courses, on-site courses, and distance learning courses. The schedule and descriptions of these courses, which cover all aspects of military packaging, may be viewed at the DAC website at <http://dactces.org/>. This information is also available in the ATRRS Course Catalog available online at the ATRRS website at <https://www.atrrs.army.mil/>. In addition to maintaining student input, ATRRS maintains a database of course information on virtually every course that is taught at military and DoD training institutions. The school code for DAC is 910. Nominations must be made through ATRRS.

b. The DAU offers training for the acquisition workforce. Information about DAU courses and the achievable certification levels is at <https://icatalog.dau.edu/>. These DAU courses are offered by the following modes: resident; local, or onsite; distance learning; a facilitated on-line learning environment; or a hybrid (combination of classroom and distance learning). Acquisition workforce, civilian, and military personnel desiring DAU training can apply for a course through the ATRRS website or the DAU website at <https://www.dau.edu/> by selecting “Apply for a Course,” then the applicable status of the employee (or, if contractor, “employees who work for a company that directly or indirectly supports a DoD agency”).

c. ASC PSCC, in Tobyhanna, Pennsylvania, is the DoD source for military packaging training for personnel with functional packaging duties of Requirements development and interpretation. PSCC provides the PACK 2 Military Packaging Design Course as a resident course. The schedule and description of this course, designed to train military and DoD civilian personnel, in approved policies, methods, and techniques of military packaging design, is available in the Army Training Requirements and Resources System (ATRRS) Course Catalog available online at the ATRRS website at <https://www.atrrs.army.mil/>. The school code for ASC PSCC is 399. Nominations must be made through ATRRS.

Chapter 3

Packaging Requirements Development

3–1. Determining packaging requirements

A military packaging baseline must be developed for all relevant items. The characteristics of an item determine the type and extent of protection needed to prevent its deterioration. At a minimum, item composition, criticality, finish, preservative compatibility, weight, size, fragility, shipping, handling, the length and type of storage considerations, and other performance factors dictate the methods and materials selected for P&P.

3–2. General requirements

a. *Major weapons program acquisition support.*

(1) *Program integration.* PHS&T can directly impact weapons-system reliability and sustainability, life-cycle costs, the DoD supply chain, and the Defense Transportation System (DTS). Weapons programs must be cost-effectively supported throughout their life cycles, and the packaging necessary for initial fielding and operational support of the system must be identified, developed, and acquired.

(2) *Packaging, handling, storage, and transportation activities.* Packaging engineering and logistics activities are most effective when integrated into the contractor’s and Government’s system engineering, logistics, and technical data management processes during the beginning stages of a program.

b. *Basic packaging requirements.*

(1) *Materiel protection.* Package materiel to prevent damage and deterioration and to provide for efficient and economical handling throughout the DoD supply chain, from initial acquisition to final disposal.

(2) *Packaging requirements development.* Develop requirements for packaging for all DoD assets to meet conditions described in this Joint regulation. Upon completion, enter all developed packaging data requirements into the appropriate logistics databases. As part of the information required for acquisition logistics management functions, develop P&P data in accordance with MIL–STD–2073–1E and acquire it in accordance with the applicable data item descriptions referenced therein. Acquire other logistics management information in accordance with Society of Automotive Engineers (SAE) GEIASTD0007B, as appropriate. Enter data into databases to allow access for sustainment and reprocurments. Finalize requirements after system requirements are stabilized at Milestone C, and provide them for final review and acceptance. Evaluate cost effectiveness as part of the initial provisioning and resupply processes.

(3) *Weight and volume.* Military packaging is designed with minimum unit pack weight and dimensions necessary to protect the packaged item. Enter each item’s unit pack weight and dimensions into each component’s packaging database. Accurate weight and dimensions data must be compatible with, and available for, DoD systems used for deployment planning, transportation efficiencies, and so on.

(4) *Contracts.* Requirements for packaging in contracts are to be detailed and cost effective.

c. *Use of American Society of Testing and Materials D3951 packaging.*

(1) *American Society of Testing and Materials D3951 packaging.* Consider use of ASTM D3951 packaging before a contract is awarded. ASTM D3951 packaging is used when the DoD packaging technical authority (packaging management personnel at the applicable ICPs or procurement activities) determines such packaging is technically adequate, cost effective, and meets known military distribution and environmental requirements. All packaged items must be undamaged upon delivery and must be marked in accordance with MIL–STD–129R. Report any damage or

discrepancy either as a transportation discrepancy or, if not transportation related, using a supply discrepancy report (SDR) prepared in accordance with DLM 4000.25–2.

(2) *Applicability.* In general, ASTM D3951 packaging applies to items not requiring further transport beyond the initial receiving activity or extended storage to meet future demand.

d. Research, design, testing, evaluation, and technology. DoD activities must keep abreast of current packaging industry technology. Also, DoD activities must encourage vendors to submit new or advanced packaging methods, procedures, equipment, and materials for testing, evaluation, and approval in accordance with chapter 6 of this regulation. Before introducing and requiring a new material for use, consider availability.

e. Contract data.

(1) *Procurement.* Procure packaging development and item characteristics data from commercial sources at the time of acquiring new systems or components using DD Form 1423 (Contract Data Requirements List) in contracts. Procured data must support both acquisition program procurement needs and those needs required to support DoD sustainment (reprocurement) activities and operational programs, including the DTS and overall DoD supply chain.

(2) *Availability.* Enter data accurately into the appropriate logistics databases to be readily accessible by personnel requiring the information.

(3) *Updates.* When the item data or logistics requirements are revised, review data to determine compatibility with the new requirements and, upon approval, enter it into the appropriate logistics databases.

f. Standardization and compatibility.

(1) *Container standardization.* Standard-sized modular unit, intermediate, and exterior packs must be compatible with established pallet, containerization, and air cargo transport system sizes approved by the International Organization for Standardization, North Atlantic Treaty Organization Standardization Agreements, and the American National Standards Institute.

(2) *Interface.* All containers, including those with ordnance, must interface with existing handling equipment to ensure smooth operational movements throughout the handling logistic cycle.

(3) *Defense Transportation System.* DoD activities must ensure standardization, commonality, and compatibility of containers (intermodal, transport, freight, reusable); unitization; marking; and container or material handling equipment for use within the DTS.

(4) *Supply chain integration.* DoD activities must use packaging and markings which support AIT (RFID and item unique identification), shelf-life, and automated storage and retrieval systems.

(5) *Unitization.* Use unitized loads when the items or packs being shipped are compatible and the unitization results in overall economy, or when the requisitioning activity requests a unitized load. Specify the requirements for unitization in acquisition actions.

g. Ordnance. Ordnance items require reusable and easily opened packaging that can withstand repeated shipments, handling, and storage under severe conditions. It must protect against shock, vibration, and environmental adversities. For packaged ordnance items, DoD must consider insensitive munitions protection and compliance with the regulatory dictates of 49 CFR and other modal regulations.

h. Automatic identification technology compatibility.

(1) *Marking.* Identify packages clearly and adequately to support supply chain materiel management operations throughout the DoD. DoD AIT compatibility applies, as appropriate.

(2) *Item unique identification.* The policy for item unique identification of items implements a DoD initiative to improve asset management through uniquely identified, tangible items and is defined in MIL–STD–130N. The unique item identifier makes the item traceable throughout its life within the DoD inventory system, and it facilitates item tracking in DoD business systems to provide reliable and accurate data for program management and accountability.

(3) *Radio frequency identification.* The DoD must continue to review handling and storage logistics as they evolve and introduce either a passive or active RFID tag into their containers or pallets. In every situation, DoD is to maximize leveraging by considering all successful existing private industrial practices. Data-rich RFID is best used when container or pallet content visibility or enhanced in-transit visibility is required. DoD must be capable of fixed data-rich RFID to support peacetime or contingency operations.

3–3. Detailed requirements

a. Packaging. DoD components must use the requirements of MIL–STD–2073–1E in the development, documentation, dissemination, and acquisition of packaging.

b. Hazardous materials.

(1) *Policy.* DoD policies for packaging HAZMAT are found in DLAR 4145.41/AR 700–143/NAVSUPINST 4030.55D/AFMAN 24–210_IP/MCO 4030.40C. DoD policies for transporting HAZMAT are in DTR 4500.9–R, Part

II. Do not construe this Joint regulation as authorizing any compromise with established safety standards when selecting packaging for HAZMAT.

(2) *Packaging and marking.* HAZMAT packaging and marking must comply with the requirements contained in: International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air; International Air Transport Association Dangerous Goods Regulations; 29 CFR; 40 CFR; 49 CFR; International Maritime Dangerous Goods (IMDG) Code; and AFMAN 24–204/TM 38–250/NAVSUP PUB 505/MCO P4030.19/DLAI 4145.3. In addition and when applicable, the requirements for performance-oriented packaging apply.

c. *Electrostatic discharge.* Develop packaging of ESD sensitive items identified by item data requirements in accordance with MIL–STD–2073–1E to protect against damage and deterioration from the time of acquisition to consumption by end user and return to repair facility, if repairable.

d. *Marking.* For all items packaged in accordance with MIL–STD–2073–1E, marking must be in accordance with MIL–STD–129R. If materiel entering the DTS is not packaged in accordance with MIL–STD–2073–1E, military markings according to MIL–STD–129R are specified in procurement contracts. When unit containers are reused, package markings must be changed and previous markings obliterated as needed to ensure that the unit container accurately reflects the item within and its handling characteristics. Marking for ammunition items are developed by the procuring activity and specified in the contract when different from MIL–STD–129R.

e. *Quantity per unit pack or intermediate container quantity.* Develop quantity per unit pack or intermediate container quantity according to MIL–STD–2073–1E and require coordination with the packaging technical authority.

f. *Shelf-life.* Evaluate shelf-life items to determine if the item’s storage period can be enhanced by the use of various packaging materials and processes. When applicable, specify those packaging materials and processes to ensure maximum item life and usability.

g. *Occupational Safety and Health Administration.* Establish and maintain an effective and comprehensive Occupational Safety and Health Program in accordance with DoDI 6055.01, 29 CFR 1960, and EO 12196. There is no compromise with the provisions of the Occupational Safety and Health Program for Federal employees who package materiel.

3–4. Pollution prevention, environment protection, and sustainability

a. *Use of environmentally preferred materials.* Control and minimize pollution of the environment due to packaging operations at DoD activities. Use environmental quality standards prescribed by Federal, State, and local authorities when determining measures to control pollution. During design and selection of packaging materials, consider reusability primarily to promote environmental quality through conservation of resources and reduction or elimination of the waste stream. When reusability is not feasible, consider the ability to recycle. Using bio based or biodegradable materials is encouraged. Before introducing a new material for use, consider environmental consequences for the life cycle of the packaging material and associated processes. Incorporate environmental pollution preventive measures into applicable standards, specifications, and instructions covering materials and processes used in packaging. Where feasible, packaging material reclamation programs must be instituted by the primary logistics activity on all DoD installations (see EO 13514).

b. *Shipboard materials.* When developing packaging requirements for items destined for stowage aboard ships, keep specification of plastic packaging materials to an absolute minimum. This enhances efforts to prevent the discharge of plastic packaging materials into the ocean in compliance with the International Convention for the Prevention of Pollution from Ships and to support the Plastics Removal in Marine Environment and the Waste Reduction Afloat Protects the Sea programs.

c. *Wood packaging materials.* The United Nations International Plant Protection Convention Phytosanitary has imposed requirements for WPM for the protection of forests worldwide against pest infestation. International Standard for Phytosanitary Measures Number 15 describes the measures to reduce the risk of introduction or spread of quarantine pests associated with WPM (including dunnage), made of coniferous and nonconiferous raw wood, in use in international trade. To comply with these requirements and ensure access to aerial and water ports, the DoD and its components must ensure nonmanufactured WPM is properly processed and marked as specified in DoDM 4140.65.

3–5. Selection of levels of packing

DoD commands, components, and storage activities are to develop procedures for selecting and applying packing protection. Table 3–1 provides general guidelines for selecting military levels of packing. When a higher level of packaging is prescribed, the higher level has preference over the matrix.

Table 3–1
General guidelines for selection of military levels of packing

Distribution pattern	Military level of pack
Security assistance, foreign military sales, and grant aid (unless otherwise directed by country)	B
War readiness or reserve	A
War readiness or reserve (less than 25 pounds and greater than or equal to 1 cubic foot)	B
Delivery of serviceable depot-level repairables to wholesale depot stock	B
Overseas (surface transportation and/or outdoor storage)	A
Overseas (air transportation and covered storage)	B

3–6. Reusable containers

a. Long-life reusable container and short-life reusable container selection. Use reusable containers to the maximum extent practicable for reparable weapon system parts, components, and assemblies. Reusable containers fall into two categories—that is Long-life Reusable Container (LLRC) and Short-life Reusable Container (SLRC)—which are classified based on the durability of the exterior shipping container and complexity of the design. The Service’s or agency’s packaging technical authority determines the suitability of LLRCs and SLRCs. See MIL–STD–2073–1E for a list of LLRC and SLRC styles based on use and application. Establish procedures to recover reusable containers to prevent unauthorized disposal. Selection and management of reusable containers are as follows:

- (1) Evaluate use of reusable containers based on their level of repair or overhaul of the item, anticipated waste stream of the packaging, and performance and anticipated number of trips for the container.
- (2) Specify reusable containers for materiel subject to retrograde shipment for repair or overhaul.
- (3) LLRC designs are in accordance with MIL–STD–648D or SAE Aerospace Recommended Practice 1967, as specified.
- (4) When an LLRC is specified for an item, it is the only authorized method of packaging without specific deviation authorized by the integrated materiel manager’s (IMM’s) packaging office.
- (5) Provision LLRCs in accordance with DoDM 4140.01, Volume 2. Item managers must provision so that both the item and the container have separate identities, that is, national stock number or part number, to permit recovery of the LLRC upon consumption or disposal of the item.
- (6) Accurately enter an item and its LLRC’s identity—that is, national stock number or part number—into appropriate logistics databases so that data is accessible by personnel requiring this information.

b. Miscellaneous.

- (1) Coordinate any new design, development, or procurement of specialized packaging and containers for Army-developed ammunition with the Commander, U.S. Army Research, Development, and Engineering Center, AMSRD–AAR–AIL–P, Picatinny Arsenal, NJ 07806–5000.
- (2) Coordinate any new design, development, or procurement of specialized packaging and LLRCs for Air Force materiel, weapon systems, components, and munitions with the Air Force Packaging Technology and Engineering Facility (AFPTEF), AFLCMC/EZPAA, 5215 Thurlow Street, Wright-Patterson AFB, OH 45433, Defense Switched Network (DSN) 787–3362, or via email cdrs@us.af.mil.
- (3) Coordinate any new design, development, or procurement of specialized packaging and LLRCs for naval materiel—including Marine Corps aviation materiel, weapon systems, and components—with the Commander, Naval Supply Systems Command Weapon Systems Support, Code 077, 700 Robbins Avenue, Philadelphia, PA 19111. For ordnance, contact the Naval Surface Warfare Center, Indian Head Explosive Ordnance Disposal Technology Division (IHEODTD), Detachment Picatinny (Naval PHS&T Center), Building 458, Whittemore Avenue, Picatinny Arsenal, NJ 07806–5000.

3–7. Container design retrieval system

a. Centralized, automated system. The DoD Container Design Retrieval System (CDRS) is a centralized, automated system for storing, retrieving, and analyzing designs and related test information of existing reusable shipping and storage containers. Design data extracted from various sources, including engineering drawings, is stored in the CDRS database. These design assets are checked for reuse in new programs.

b. Purpose. The purpose of CDRS is to avoid duplicative container designs, minimize the number of new container designs, and promote reusing existing DoD reusable containers for new-item development and procurement. A reusable container is designed to support and protect its contents during transportation, storage, and handling and to protect personnel from its contents. Its design may also incorporate features that facilitate more effective transportation, storage, or handling. Reusable containers also include containers for which drawings are prepared in SPI format, as in MIL-STD-2073-1E, and other packaging systems, described by illustrations, sketches, figures, or drawings in specifications or technical orders.

c. Administration.

(1) The CDRS or management office has personnel, facilities, and authority to provide CDRS service to all DoD development or procurement activities. The CDRS or management office is located at AFPTEF, AFLCMC/EZPAA. The address is AFLCMC/EZPAA, 5215 Thurlow Street, Wright-Patterson AFB, OH 45433. CDRS can be contacted via phone DSN 674-0114 or 787-3362.

(2) The Air Force Life Cycle Management Center executes all functions of CDRS or management office and operates the CDRS to provide a DoD-wide container documentation retrieval and container design and development capability.

(3) All DoD activities engaged in the development or procurement of specialized containers must send a search request using the format prescribed in MIL-STD-2073-1E and DI-PACK-80683 B to CDRS or management office at cdrs@us.af.mil before initiating a new design or production program.

(4) The CDRS or management office maintains an electronic record of existing reusable container designs, corresponding design drawings, and information. These are used for technical analysis and container reuse applications to reduce acquisition costs and increase the options available to the procurement activity.

(5) Design, function, and test data on all specialized reusable containers must be furnished by the design activity to the CDRS or management office in accordance with MIL-STD-2073-1E and DI-PACK-80684 B.

(6) Procedures for compliance with CDRS requirements are specified in MIL-STD-2073-1E.

Chapter 4

Data Systems

4-1. General requirements

a. MIL-STD-2073-1E is the governing document for developing military packaging requirements.

b. All DoD components must develop and use data systems to store MIL-STD-2073-1E military packaging data (including SPIs) for procured items.

c. Data systems must be capable of storing, retrieving, and exchanging developed military packaging data with other DoD components or activities, especially the Defense Logistics Information Service.

d. All data systems must be standardized across all DoD components.

e. The Federal Logistics Information System is the DoD repository for all packaging data maintained by the Defense Logistics Information Service. To ensure data transfer, it is essential that all Services, DLA, and Federal Logistics Information System data systems are compatible.

4-2. Detailed requirements

a. Design data systems to be flexible to ensure a common approach for implementing data modifications required by revisions to MIL-STD-2073-1E.

b. Implement data system modifications, required as a result of revisions to MIL-STD-2073-1E, concurrently across all DoD components in a timely manner.

c. Coordination among DoD components is encouraged to aid in developing new enterprise resource planning data systems. DoD components should leverage service or agency progress and solution development to maximize standardization and system capability while minimizing cost.

d. Data systems must be capable of storing, retrieving, and exchanging developed MIL-STD-2073-1E packaging data from the time of provisioning throughout the weapon system's life cycle. Data includes MIL-STD-2073-1E coding and other defined elements.

e. Standardize data for non-MIL-STD-2073-1E-defined elements—such as type of storage, shelf-life, transportation, and base unit of measure coding or coding logic—across all DoD components.

f. Cleanse the database a minimum of twice a year to ensure accuracy and completeness of data.

Chapter 5

Procedures for Applying Packaging Requirements

5-1. General requirements

a. Procurement. Provide packaging data requirements, developed for each item, at the time of procurement. Reuse the item-specific packaging requirements for each subsequent procurement of the item. Monitor and control packaging requirements to assure accuracy, especially when there are changes affecting form, fit, function, or packaging of the item which changes the cataloged configuration for items whose stock number incorporates the packaging.

(1) The Service's or agency's packaging technical authority determines which type of packaging to use for a specific procurement. This determination is made as follows:

(a) The requirements of MIL-STD-2073-1E apply when military packaging is required to meet operational demands. This applies to items entering the DTS and includes but is not limited to, the following items:

1. Delivered during wartime for deployment or sustainment to operational units.
2. Items that are depot level repairables.
3. Requiring reusable containers.
4. Intended for delivery at sea.
5. For Security Assistance/Foreign Military Sales/Grant Aid (unless otherwise directed by the destination country).

(b) ASTM D3951 packaging applies to items where military packaging is not necessary. These items include, but are not limited to, the following items:

1. Intended for immediate use.
2. Fulfillment of not-mission-capable supply requirements.
3. Intended for depot consumption.
4. Shipped small parcel post (continental United States only), not for stock.
5. Designated as customer-direct deliveries (continental United States only).

(2) The prime contractor, subcontractor, manufacturer, or a packaging contractor must package the items in accordance with the contract requirements. Use a Government facility only during one of the following:

(a) Approval by the appropriate component level of command or after packaging management personnel of the responsible ICP and the facility commander approve the request.

(b) Establishes cost benefits.

(c) When available commercial sources cannot or will not provide the service within the required time frame.

b. Department of Defense commands and components. To maximize standardization and minimize costs when applying packaging requirements, acquisition commands and components must contact the packaging management personnel at their applicable ICP or engineering support activity, as appropriate. Based upon optimized packaging requirements obtained from the applicable ICP or engineering support activity, acquiring commands and components must:

(1) Maintain and apply the most current data to determine level of packing requirements for materiel scheduled for delivery to DLA or Service storage activities. This reduces upgrading or repackaging workloads prior to storage and/or redistribution.

(2) Order the required packaging at the time of item procurement. State packaging requirements clearly and in enough detail to acquire the required packaging of supplies and equipment.

(3) Select the preservation requirements and level of packing based on anticipated shipping, handling, transportation, storage, and environmental conditions and the duration of required protection.

(4) Advise storage activities of the packaging needed for mobilization or contingency reserve stocks.

(5) Use prescribed PHS&T requirements developed by the PHS&T for the applicable weapon systems acquisition program.

c. Storage and shipping activities. To maximize standardization and minimize costs in the application of packaging requirements if packaging requirements are unavailable for an item, shipping activities must contact the packaging management personnel at the applicable asset-owning ICP. Based upon optimized packaging requirements obtained, shipping activities must:

(1) Have trained personnel to pack DoD materiel for worldwide shipments in accordance with MIL-STD-2073-1E requirements, SPIs, military specification packaging and packaging instructions, or maintenance work requirements.

(2) Provide the required packaging for materiel being shipped, transshipped, or stored.

(3) Establish internal controls to ensure that, during the selection of materiel for shipment, previously packaged stock that meets the level of packing required for the shipment is considered. Selection of the appropriate P&P, when available, eliminates unnecessary upgrading or furnished protection that exceeds anticipated requirements.

(4) Provide for and ensure availability of necessary materials and resources to package rotational stocks on demand to support mobilization or contingency operations.

(5) Establish functional packaging areas in well-illuminated, ventilated facilities that can be heated and that can provide a work environment conducive to providing cost effective P&P for DoD materiel.

(6) Establish internal procedures to maximize use and reuse of containers. Procedures must provide the IMM with container status upon removal of an item from an LLRC and state that reusable containers do not accompany condemned contents to the DLA Disposition Services site.

(7) Report LLRCs for which no requirement exists to IMM, according to individual Service or agency procedures. These containers are not disposed of until guidance is received from the IMM. If the IMM does not provide disposition instructions within 45 working days of notification, then shipping activities may use local procedures to determine container disposition.

d. Receiving activities. At the first delivery point, receiving activities must ensure that packaging complies with the contract requirements. If packaging or marking discrepancies are found, prepare an SDR, in accordance with DLM 4000.25–2, to document findings.

e. Packing levels. When conditions used to determine the level of packing falls within two levels, apply the higher level. If packing requirements at the requested level are not established, apply the next higher level or contact the asset owner's packaging office for instructions. Use packing requirements specified by the packaging personnel at the buying activity when prescribed. If not specified, default to table 3–1 for guidelines to determine appropriate level of packing.

5–2. Use of options

When standards, specifications, purchase descriptions, SPIs, drawings, or other authorized packaging instructions for an item allow options, select the preservation methods, materials, and/or packing level option that provides the required protection at the lowest overall cost.

5–3. Compatibility of requirements

Packaging data for repair parts must be compatible with maintenance, packaging, handling, storage, transportation, supply, and acquisition needs. The requirements include pack quantities, intermediate containers, shipping containers, and unit load quantities in agreement with issue, handling, and shipping requirements, as appropriate. Enter military packaging data for repair parts and components into the appropriate logistics databases. Do not preserve or pack repairable repair parts and components using ASTM D3951 packaging.

5–4. Packaging of materiel in storage

At all levels of supply and distribution, store serviceable materiel in the unopened unit pack until use to ensure protection of materiel and to facilitate return of retrograde materiel. To the greatest extent possible, use packaging materials, including reusable containers, to return unserviceable, repairable materiel. If the packaging protection is compromised, then the storage activity remediates using Defense Logistics Agency Instruction (DLAI) 4145.4/AR 740–3/AFMAN 23–5(IP)/NAVSUPINST 4400.100A/MCO 4450.15A.

5–5. Protecting retrograde cargo or returned materiel

Protect retrograde materiel consistent with the provisions of the commodity grouping. The shipper is responsible for adequate packaging of materiel returns as specified in DLAI 4145.4/AR 740–3/AFMAN 23–125(IP)/NAVSUPINST 4400.100A/MCO 4450.15A. The materiel is protected as follows:

a. To prevent deterioration and damage, consumable, return serviceable items in the original unit pack, in a unit pack that is the equivalent of the original unit pack, or in a pack determined to be suitable by the Service's packaging technical authority. Failure to follow these procedures for serviceable returns could result in the loss of credit and use of a DoD asset. To minimize the possibility of credit loss, do not remove the item from the original unit pack until ready for use.

b. Package serviceable and unserviceable, repairable material to maintain the integrity of the item's serviceability and condition, thus protecting serviceable assets from damage and downgrading and protecting unserviceable assets from damage which could increase repair costs.

c. Preserve, pack, and mark materiel for shipment in accordance the DoD component's packaging requirements. Shippers of these assets are accountable for resources expended for repackaging of inadequately packed returns. Receivers must submit an SDR prepared in accordance with DLM 4000.25–2 for packaging and marking discrepancies. IMM have the authority to bill shippers for repackaging of discrepant shipments.

d. When an item's packaging requirements dictate using a reusable container, treat the item with that protection throughout its life cycle. If an item's reusable container is damaged, destroyed, or lost, the last accountable activity is responsible for repairs or making arrangements with the container service owner for a replacement.

e. Identify all items with the national stock number or part number and the quantity. Apply labels and markings as required by MIL-STD-129R and the DoD component.

f. Package HAZMAT according to applicable modal regulations identified in paragraph 3-3b. Mark materiel according to the applicable regulations and MIL-STD-129R. If the safety data sheets (SDSs) are not available in the Hazardous Materials Information Resource System, the SDS received with the HAZMAT must accompany the returned materiel. Information relative to the SDS can also be found in DoDI 6050.05.

5-6. Life of type buys

Due to the anticipated long storage duration, materiel procured as life of type requires military packaging as a minimum. The managing activity and the materiel custodian may develop specialized packaging requirements and care-of-supplies-in-storage procedures, based on the characteristics of the materiel.

5-7. Reporting discrepancies

DoD activities must prepare SDRs in accordance with DLM 4000.25-2 to report shipping-type (item) and packaging discrepancies attributable to the shipper, including contractors, manufacturers, or vendors.

5-8. Transfer of materiel to disposal activities

DoD components must transfer materiel to disposal activities with minimal packaging necessary to ensure safe handling, transportability, and receipt. The DoD components must establish routine procedures to recover reusable containers with defined requirements to designated activities.

Chapter 6

Military Packaging Focus Areas

6-1. General focus areas

Focus areas have been established in this regulation due to their nature and impact on the military packaging community and operations. For some focus areas, working groups are established on a long-term basis. Other groups are formed on an ad hoc basis and meet only as needed to solve a problem or implement a solution. Focus areas:

- a. Eliminate duplicating effort.
- b. Improve skills and increasing productivity.
- c. Standardize.
- d. Provide for the proliferation of emerging technologies in packaging processes and materials.
- e. Establish commonality in budgeting, funding, and spending between participating testing facilities.

6-2. Nontesting focus areas

Nontesting focus areas are detailed as follows:

- a. *Training (Army executive agent)*. Provide training recommendations to develop personnel working in military packaging as related to their immediate position needs, enhanced position development, and position certification, as needed.
- b. *Documentation (ad hoc)*. Provide guidance, recommendations, and impact assessments for changes (both technical and administrative) made to pertinent military packaging documentation that includes, but is not limited to regulations, instructions, standards, specifications, handbooks, and manuals.
- c. *Data systems*. Provide recommendations to modernize DoD packaging data systems and to optimize and standardize resident packaging data.
- d. *Integration with handling, storage, and transportation*. Provide recommendations to optimize protection of materiel stored and/or moved between DoD facilities and aboard ships when using packaging materials and processes.
- e. *Environmental issues*. Provide recommendations to develop pollution prevention strategies to support environmental legislation affecting all related military packaging operations.

6-3. Lead testing focus areas

The following activities are missioned for lead testing and evaluating materials and processes in the specified area:

a. *U.S. Air Force.* AFPTEF, (AFLCMC/EZPAA), 5215 Thurlow Street, Wright-Patterson AFB, OH 45433–5540, DSN 787–3362, is the lead test activity for the materials and processes listed in table 6–1.

Table 6–1

Air Force packaging technology and engineering facility missions

Materials	Processes
Containers, metal, and plastic	Foam-in-place systems
Shock indicators	Fast-pack container systems
Crates; wood and metal	Cushioning systems
Cushioning materials	Strippable coating systems
Humidity indicators	Computer-aided design system and computer-aided finite element structural analysis
Foam (preformed or foam-in-place)	
Pallets, metal	

b. *U.S. Army.*

(1) U.S. Army Materiel Command, Logistics Support Activity Packaging, Storage, and Containerization Center, 11 Hap Arnold Boulevard, Tobyhanna, PA 18466–5097, is the lead test activity for the materials and processes listed in table 6–2.

Table 6–2

Army Materiel Command Logistics Support Activity Packaging, Storage, and Containerization Center missions

Materials	Processes
Adhesives	Unitization systems (MIL–STD–147E)
Preservation materials	Stretch wrap systems
Barrier materials	Shrink wrap systems
Boxes; wood and wire bound	Marking and labeling systems
Boxes and sheet stock, fiberboard	Vacuum-formed thermoplastic systems
Pallets, other than metal	Cold-seal packaging systems
Tapes	Dehumidification systems
Marking and labeling materials	Plastic wrap system
Desiccant materials	Plastic bag/package forming systems
Tags, document protectors, packing lists	
Bags and sacks	

(2) The Natick Soldier Research, Development, and Engineering Center, AMSBC–I–SPS, Kansas Street, Natick, MA 01760–5052, is lead test activity for personal support materiel (clothing, textiles, and subsistence) and is the lead test activity for biodegradable packaging materials.

(3) DAC, (SIOAC–DEV), 1 C Tree Road, McAlester, OK, 74501, is the lead test activity for processes related to automatic banding systems.

c. *U.S. Navy.*

(1) Naval Surface Warfare Center, IHEODTD, Detachment Picatinny (Naval PHS&T Center), Building 458, Whittemore Avenue, Picatinny Arsenal, NJ 07806–5000, is the lead test activity for strapping materials (metal and non-metal).

(2) The Naval Air Systems Command, Logistics and Industrial Operations Group, Code 6.7.2, Building 333, Lakehurst, NJ 08733, is the lead test activity for ESD and electromagnetic interference materials, equipment, and test methodologies.

d. *Exclusions.* The following categories of material are excluded from the lead testing focus areas concept:

(1) Materials and processes singularly related to specific end items or weapon systems or subsystems with no widespread application.

- (2) Research, development, testing, and evaluation of packaging equipment related to specific or unique operational requirements of one DoD component.
- (3) Compliance testing of contractor products unless specifically justified and not covered by contract requirements.
- (4) U.S. Food and Drug Administration regulated medical items.
- (5) HAZMAT package certification testing to document conformance with United Nations standard package performance requirements.

6-4. Technical management

a. Testing activities working group. A testing activities working group is established to meet the military packaging focus-area objectives specified in paragraph 6-1. The working group consists of a minimum of one representative from each of the testing facilities mentioned in paragraph 6-3. The working group updates the DPPG annually at the end of the fiscal year or as requested by the DPPG chair.

b. Requesting activities. Activities who submit materials or processes for testing and evaluation must specify the tests to be conducted on the DD Form 1222 (Request for and Results of Tests). The assigned testing activity determines the number of samples for testing based on the requirements of the test program. If field-testing is required, the requesting service is responsible for making the necessary arrangements. If multiservice field tests are required, the requesting activity coordinates with the other affected services. All pertinent data from commercial sources, Government agencies, or contractors must be furnished.

c. Testing activities. Testing activities must request that the specification or standard preparing activity provide the applicable specification or standard to determine whether testing has been previously accomplished. Do all testing according to appropriate testing methods. The testing activity submits a final report to the requesting activity and to the preparing activity of the applicable specification.

d. Specification or standard preparing activities. Coordinate any testing accomplished by the preparing activity in conjunction with specification maintenance with the assigned testing activity and furnish a copy of all test results to that activity.

e. Technical information. Provide a uniform means of identifying, recording, and retaining technical and management information on specialized containers.

f. In-depth activities. Provide an in-depth review of technical data on existing container designs and surplus assets to determine their reusability in new defense systems acquisitions or existing programs.

g. Development activities. Promote and support procurement competition for DoD design, engineering, prototyping, and development capabilities. These capabilities serve as a preferred source for container development or modification when existing container resources are not sufficient to satisfy technical, cost, or schedule requirements or to facilitate standardization and quality.

h. New materials. Activities must submit recommended changes to MIL-STD-2073-1E codes for materials tested and approved for use to the Commanding Officer, Naval Air Warfare Center Aircraft Division, (Code 6.7.2.4), Highway 547, Lakehurst, NJ 08733-5100. Add codes for new materials in accordance with the procedures detailed in MIL-STD-2073-1E.

6-5. Project and information exchange

a. For the purpose of packaging project information exchange, a project is any planned workload requiring 160 or more man-hours, including all support functions. This research, development, testing, and evaluation may result in new or improved packaging concepts, methods, procedures, or materials. Excluded are internal procedures, suggestions, briefings, presentations, or packaging requirements development projects for weapons systems and spares.

b. Submit completed packaging project reports to the Director, Defense Technical Information Center, (DTIC-ODR), Suite 0944, 8725 John J. Kingman Road, Fort Belvoir, VA 22060-6218, for inclusion in their files using SF 298 (Report Documentation Page). Classified reports are exempt from this requirement.

c. Packaging test activities must submit United Nations packaging test reports for HAZMAT, documenting container compliance with United Nations requirements, in accordance with DLAR 4145.41/AR 700-143/NAVSUPINST 4030.55D/AFMAN 24-210_IP/MCO 4030.40C. This requirement includes test reports for ammunition and explosives.

Chapter 7 Metrics

7-1. Introduction

DoD Services and agencies must:

- a. Establish common performance metrics to include acquisition and distribution operations.
- b. Ensure performance metrics are efficient and effective for packaging management.
- c. Ensure performance metrics are used to evaluate the performance and cost of packaging operations.
- d. Provide guidance on the appropriate set of metrics to evaluate and compare the implementation of packaging policies and standardizations as set forth by this document.

7-2. Importance of obtaining metrics

- a. Performance metrics effectively manage packaging organizations over time and drive logistics improvements and expected outcomes.
- b. Performance metrics should incorporate certain characteristics that are—
 - (1) Quantitative.
 - (2) Measurable.
 - (3) Visible.
 - (4) Easy to understand with outcomes that address all aspects or functions of packaging operations.

7-3. Selection of the standards

The DoD components must adopt metrics that—

- a. Support program performance and the policy requirements in this regulation.
- b. Monitor the efficient use of DoD resources.
- c. Provide a means to assess packaging savings and cost-avoidance actions and benefits of packaging operations.
- d. Maximize commonality across the DoD.

7-4. Properties to be checked

- a. Each DoD component must develop procedures to measure and report packaging savings and cost-avoidance actions (see DoDM 4140.01, Volume 9).
- b. Each DoD component must develop procedures to measure and report shipments with packaging discrepancies in accordance with DLM 4000.25-2. Each DoD packaging activity must have access to detail or summary reports that reflect the number of packaging SDRs processed during a particular time frame by discrepancy type and shipping activity.
- c. DoD components should develop joint packaging performance metrics that improve operational mission support objectives. These metrics must be easily identified and enforceable. Measurable properties should include:
 - (1) P&P material costs.
 - (2) Packaging material and labor costs to build SPI containers.
 - (3) Preservation and/or packing time cycle (pieces processed per hour).
 - (4) Number of assets turned in without prescribed reusable containers.
- d. General packaging management metrics are given in table 7-1. The corresponding properties from the warfighter's perspective are also listed, and the mission support objectives are derived accordingly. Thus, table 7-1 provides an overview of packaging performance metrics from various perspectives.

Table 7-1
General properties for packaging performance metrics

Packaging metric	Warfighter perspective	Mission-support objective
Packaging discrepancies	Customer satisfaction	Quality defects
Savings and cost-avoidance	Operational efficiency	Operational effectiveness
Packaging material cost	Operational efficiency	Financial performance
Accuracy and availability of packaging data	Materiel readiness	Operational effectiveness

Appendix A

References

Section I

Required Publications

This section contains no entries.

Section II

Related Publications

A related publication is a source of additional information. The user does not have to read it to understand this publication.

AFMAN 24–204/TM 38–250/NAVSUP PUB 505/MCO P4030.19/DLAI 4145.3

Preparing Hazardous Materials for Military Air Shipments

AR 11–2

Managers' Internal Control Program

ASQ/ANSI/ISO 9000:2015

Quality Management Systems - Fundamentals and Vocabulary (Available for purchase at <https://asq.org/>.)

ASTM D996

Standard Terminology of Packaging and Distribution Environments (Available for purchase at <https://www.astm.org/>.)

ASTM D3951

Standard Practice for Commercial Packaging (Available for purchase at <https://www.astm.org/>.)

DA Pam 25–403

Guide to Recordkeeping in the Army

DI–PACK–80683C

Container Design Retrieval System (CDRS) Search Request (Available at <https://quicksearch.dla.mil/>.)

DI–PACK–80684C

Container Design Retrieval System (CDRS) Data Input (Available at <https://quicksearch.dla.mil/>.)

DLAI 4145.4/AR 740–3/AFMAN 23–125(IP)/NAVSUPINST 4400.100A/MCO 4450.15A

Stock Readiness (Available at <https://www.dla.mil/>.)

DLAR 4145.41/AR 700–143/NAVSUPINST 4030.55D/AFMAN 24–210_IP/MCO 4030.40C

Packaging of Hazardous Material (Available at <https://www.e-publishing.af.mil/>.)

DLM 4000.25–2

Military Standard Transaction Reporting and Accountability Procedures (MILSTRAP) (Available at <https://www.dla.mil/>.)

DoD 4500.9–R, Defense Traffic Management Regulation (DTR), Part II

General Cargo Movement Provisions (Available at <https://www.acq.osd.mil/>.)

DoDI 6050.05

DoD Hazard Communication (HAZCOM) Program (Available at <https://www.esd.whs.mil/>.)

DoDI 6055.01

DoD Safety and Occupational Health (SOH) Program (Available at <https://www.esd.whs.mil/>.)

DoDM 4140.01, Volume 2

DoD Supply Chain Materiel Management Procedures: Demand and Supply Planning (Available at <https://www.esd.whs.mil/>.)

DoDM 4140.01, Volume 9

DoD Supply Chain Materiel Management Procedures: Materiel Programs (Available at <https://www.esd.whs.mil/>.)

DoDM 4140.65

Issue, Use, and Disposal of Wood Packaging Material (WPM) (Available at <https://www.esd.whs.mil/>.)

EO 12196

Occupational safety and health programs for Federal employees (Available at <https://www.archives.gov/>.)

EO 13514

Federal Leadership in Environmental, Energy, and Economic Performance (Available at <https://www.archives.gov/>.)

IATA Dangerous Goods Regulations

International Air Transport Association Dangerous Goods Regulations (Available for purchase at <https://www.iata.org/>.)

IMDG Code

International Maritime Dangerous Goods Code (Available for purchase at <https://imo.org/>.)

International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air

(Available for purchase at <https://www.icao.int/>.)

International Convention for the Prevention of Pollution from Ships

(Available for purchase at <https://imo.org/>.)

MIL-STD-129R

Military Marking for Shipment and Storage (Available at <https://quicksearch.dla.mil/>.)

MIL-STD-130N

Identification Marking of U.S. Military Property (Available at <https://quicksearch.dla.mil/>.)

MIL-STD-147E

Standard Practice for Palletized Unit Loads (Available at <https://quicksearch.dla.mil/>.)

MIL-STD-648D

Design Criteria Standard for Specialized Shipping Containers (Available at <https://quicksearch.dla.mil/>.)

MIL-STD-2073-1E

Standard Practice for Military Packaging (Available at <https://quicksearch.dla.mil/>.)

SAE ARP1967B

Containers, Shipping and Storage, Reusable (Available for purchase at <https://www.sae.org/>.)

SAE GEIASTD0007B

Logistics Product Data (Available for purchase at <https://www.sae.org/>.)

29 CFR

Labor (Available at <https://www.ecfr.gov/>.)

40 CFR

Protection of Environment (Available at <https://www.ecfr.gov/>.)

49 CFR

Transportation (Available at <https://www.ecfr.gov/>.)

Section III**Prescribed Forms**

This section contains no entries.

Section IV**Referenced Forms**

Unless otherwise indicated, DA Forms are available on the Army Publishing Directorate website (<https://armypubs.army.mil/>); DD Forms are available on the Office of the Secretary of Defense website (<https://www.esd.whs.mil/directives/forms/>) and SFs are available on the U.S. General Services website (<https://www.opm.gov/forms/standard-forms/>).

DA Form 11-2

Internal Control Evaluation Certification (Cited para B-3.)

DA Form 2028

Recommended Changes to Publications and Blank Forms (Cited on title page.)

DD Form 1222

Request for and Results of Tests (Cited in para 6-4*b*.)

DD Form 1423

Contract Data Requirements List (Cited in para 3-2*e*(1).)

SF 298

Report Documentation Page (Cited in para 6-5*b*)

Appendix B

Internal Control Evaluation

B-1. Function

The function covered by this evaluation is Army packaging operations.

B-2. Purpose

The purpose of the internal control evaluation is to assist Army senior leaders in assessing the key internal controls listed. It is not intended to cover all controls.

B-3. Instructions

Base answers on the actual testing of key internal controls (for example, document analysis, direct observation, sampling, and simulation). Explain answers that indicate deficiencies and identify the corrective action in supporting documentation. Evaluate these internal controls at least once every 5 years. Certify that the evaluation has been conducted using DA Form 11-2 (Internal Control Evaluation Certification).

B-4. Test questions

- a.* Are all packaging personnel properly trained for their specific functions?
- b.* Is packaging data readily available for procurements?
- c.* Is packaging data readily available for field packaging operations?
- d.* Does packaging data reflect MIL-STD-2073-1E current revision codes and processes?
- e.* Do packaging discrepancies (SDRs or via <http://websdr.org/>) require validation and review by the packaging developer to improve packaging designs?
- f.* Are stock readiness packaging materials costs tracked and reported?
- g.* Is there a procedure for packaging operations to provide recommendations for packaging improvements to packaging developers?
- h.* Is there an effectiveness and efficiency audit program in place for packaging activities?
- i.* Is required lead service packaging test equipment being programmed, funded, and procured?
- j.* Are lead service packaging test operations adequately funded?
- k.* Are lead service packaging test instruments and personnel properly certified?

B-5. Supersession

Not applicable.

B-6. Comments

Help make this a better tool for evaluating internal controls. Submit comments to the Deputy Chief of Staff, G-4 (DALO-SPS), 500 Army Pentagon, Washington, DC 20310-0500.

Glossary

Section I

Abbreviations

AFMAN

Air Force Manual

AFPTEF

Air Force Packaging Technology and Engineering Facility

AIT

automatic identification technology

AR

Army Regulation

ARIMS

Army Records Information Management System

ASC

Air Force Manual

ASTM

American Society of Testing and Materials

ATRRS

Army Training Requirements and Resources System

CDRS

Container Design Retrieval System

CFR

Code of Federal Regulations

DA

Department of the Army

DAC

Defense Ammunition Center

DAU

Defense Acquisition University

DLA

Defense Logistics Agency

DLAI

Defense Logistics Agency Instruction

DLAR

Defense Logistics Agency Regulation

DLM

Defense Logistics Manual

DoD

Department of Defense

DoDI

Department of Defense Instruction

DoDM

Department of Defense Manual

DPPG

Defense Packaging Policy Group

DSN
Defense Switched Network

DTR
Defense Transportation Regulation

DTS
Defense Transportation System

ESD
electrostatic discharge

HAZMAT
hazardous materials

ICP
inventory control point

IHEODTD
Indian Head Explosive Ordnance Disposal Technology Division

IMM
integrated materiel manager

LEM
logistics element manager

LLRC
Long-life Reusable Container

MCO
Marine Corps Order

MIL-STD
Military Standard

NAVSUPINST
Naval Supply Systems Command Instruction

P&P
preservation and packing

PHS&T
packaging, handling, storage, and transportation

PSCC
Packaging, Storage and Containerization Center

RFID
radio frequency identification

SAE
Society of Automotive Engineers

SDR
supply discrepancy report

SDS
safety data sheet

SF
Standard Form

SLRC
short-life reusable container

SMPT
School of Military Packaging Technology

SPI

special packaging instruction

WPM

wood packaging materials

Section II**Terms****Defense Packaging Policy Group**

A permanent forum established to address packaging issues, identify potential solutions, and make recommendations concerning packaging policy, guidance, and standardization throughout the military departments, DLA, and the Defense Contract Management Agency.

Life of type buy

A one-time procurement, when all cost effective and prudent alternatives have been exhausted, for the total future requirement of an item that is no longer expected to be produced. Base the procurement quantity on demand or engineering estimates of wear-out rates or item malfunction or failure sufficient to support the applicable equipment until phased out.

Military packaging

The P&P methods and materials described in MIL-STD-2073-1E.

Military preservation

The application of specific methods of preservation detailed in MIL-STD-2073-1E (methods 10, 20, 30, 40, and 50 comprise the five basic methods found in MIL-STD-2073-1E).

Plastics removal in marine environment

The removal of plastic packaging materials from supply items forwarded to Navy or prepositioned ships to prevent the discharge of plastics into the oceans.

Waste Reduction Afloat Protects the Sea

A program focusing on the reduction of solid waste materials from supply items. It minimizes pollution of the oceans and reduces the amount of material that would have to be brought back to shore for disposal.

Wood packaging materials

WPM is defined as wood pallets, skids, load boards, pallet collars, wooden boxes, crates, reels, dunnage, and the solid wood frames or solid wood cleats of any plywood box packing materials. Exempt from these requirements are packaging materials that have been manufactured from wood, such as corrugated fiberboard, plywood, particle board, veneer, and oriented strand board.

Section III**Special Abbreviations and Terms**

This section contains no entries.

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