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PPP-B-140C  
 March 1, 1993  
 SUPERSEDING  
 PPP-B-140B  
 15 June 1988  
 and MIL-P-6063B  
 22 March 1978

## FEDERAL SPECIFICATION

### BATTERIES, STORAGE, INDUSTRIAL, AUTOMOTIVE, AIRCRAFT AND NAVY PORTABLE: PACKAGING OF

This specification is approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

#### 1. SCOPE

1.1 Scope. This specification covers the preservation, packaging, packing and marking of lead acid, nickel-cadmium alkaline storage, and aircraft batteries with or without electrolyte (charged and dry or uncharged and moist).

#### 2. APPLICABLE DOCUMENTS

##### 2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

##### Federal Specifications

O-S-801 - Sulfuric Acid, Electrolyte, for Storage Batteries  
 PPP-B-601 - Boxes, Wood, Cleated - Plywood

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\*Beneficial comments (recommendations, additions, deletions) and any pertinent\*  
 \*data which may be of use in improving this document should be addressed to: \*

\*Commanding Officer (Code 156), Naval Construction Battalion Center, \*

\*621 Pleasant Valley Road, Port Hueneme, CA 93043-4300, by using the \*

\*Standardization Document Improvement Proposal (DD Form 1426) appearing at \*

\*the end of this document or by letter. \*

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AREA PACK

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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- PPP-B-621 - Boxes, Wood, Nailed and Lock-Corner
- PPP-B-636 - Boxes, Shipping, Fiberboard
- PPP-B-640 - Boxes, Fiberboard, Corrugated, Triple-Wall
- PPP-C-2020 - Chemicals, Liquid, Dry and Paste: Packaging of
- PPP-T-60 - Tape, Packaging, Waterproof
- PPP-T-76 - Tape, Packaging, Paper (For Carton Sealing)

## Federal Standards

- FED-STD-101 - Test Procedures for Packaging Materials
- FED-STD-123 - Marking for Shipment (Civil Agencies)

(Activities outside the Federal Government may obtain copies of Federal specifications, standards, and commercial item descriptions as outlined under General Information in the Index of Federal Specifications, Standards, and Commercial Item Descriptions. The Index, which includes cumulative bimonthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

(Single copies of this specification and other Federal specifications and commercial item descriptions required by activities outside the Federal Government for bidding purposes are available without charge from General Services Administration Business Service Centers in Boston, MA; New York, NY; Philadelphia, PA; Washington, DC; Atlanta, GA; Chicago, IL; Kansas City, MO; Fort Worth, TX; Houston, TX; Denver, CO; San Francisco, CA; Los Angeles, CA; and Seattle, WA.)

## Military Specifications

- MIL-C-104 - Crates, Wood; Lumber and Plywood Sheathed, Nailed and Bolted
- MIL-P-116 - Preservation, Methods of
- MIL-B-121 - Barrier Material, Greaseproofed, Waterproofed, Flexible
- MIL-C-450 - Coating-Compound, Bituminous Solvent Type, Black (For Ammunition)
- MIL-P-19644 - Plastic Molding Material (Polystyrene Foam, Expanded Bead)
- MIL-B-26195 - Boxes, Wood-Cleated, Skidded, Load-Bearing Base
- MIL-P-26514 - Polyurethane Foam, Rigid or Flexible, for Packaging

## Military Standards

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-147 - Palletized Unit Loads
- MIL-STD-1186 - Cushioning, Anchoring, Bracing, Blocking and Waterproofing; with Appropriate Test Methods
- MIL-STD-1190 - Minimum Guidelines for Level C Preservation, Packing and Marking

(Unless otherwise indicated, copies of federal and military specifications and standards are available from the Standardization Documents Order Desk, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

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2.1.1 Other Government documents and publications. The following other Government documents and publications form a part of this specification to the extent specified herein. Unless otherwise specified, the issues shall be those in effect on the date of the solicitation.

Federal Regulations

- 46 CFR - Shipping (Parts 146 - 149)
- 49 CFR - Transportation (Parts 100 - 199)

Military Publications

AFM 71-4/DLAM 4145.3/TM 38-250/NAVSUP PUB 505/MCO 4030.19E - Preparing Hazardous Materials for Military Air Shipments

(Application for copies should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are current on the date of the solicitation shall be used (see 6.2).

ASTM:

- ASTM D 1974 - Methods of Closing, Sealing, and Reinforcing Fiberboard Shipping Containers
- ASTM D 3951 - Commercial Packaging
- ASTM D 4727 - Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes

(Application for copies should be addressed to ASTM, 1916 Race Street, Philadelphia, PA 19103.)

International Airline Transportation Association (IATA):

(Application for copies should be addressed to the International Air Transport Association, 200 Perl Street, Montreal, Quebec, Canada H3Z 2R2.)

Dangerous Goods Regulations

International Civil Aviation Organization (ICAO):

Technical Instructions

(Application for copies should be addressed to the International Civil Aviation Association, 1000 Sherbrooke Street West, Suite 400, Montreal, Quebec, Canada H3A 2R2.)

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International Maritime Organization (IMO):

International Maritime Dangerous Goods (IMDG) Code

(Application for copies should be addressed to the International Maritime Organization, 4 Albert Embankment, London, SE1, 7SR.)

National Motor Freight Traffic Association (NMFTA):

National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Association, Inc., Traffic Department, 2200 Mill Road, Alexandria, VA 22314.)

National Railroad Freight Committee (NRFC):

Uniform Freight Classification

(Application for copies should be addressed to the National Railroad Freight Committee, 222 South Riverside Plaza, Suite 1120, Chicago, IL 60606.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

3.1 Preproduction pack. When specified (see 4.3 and 6.2), the contractor shall furnish a preproduction pack for examination and test within the timeframe specified (see 6.2) to prove prior to starting production packaging, that the applied preservation, packaging, packing, and marking comply with the requirements of this specification. Examination and test shall be as specified in section 4 and shall be subject to surveillance and approval by the Government (see 6.4).

3.2 General. Batteries shall be packaged and packed in a manner to assure the handling, shipment, and storage of the batteries in an upright position. Protection against short circuiting shall be provided for batteries shipped in a charged condition. Unless otherwise specified (see 6.2), vent openings of charged and dry or uncharged and dry lead acid batteries shall be sealed in such a manner that the seal must be broken in order to activate the batteries. Vent openings in nickel-cadmium batteries shall not require sealing.

3.3 Materials. Materials shall be as specified herein. When specified for aircraft batteries (see 6.2), pads and inserts used for protective and support purposes shall be constructed of weather-resistant fiberboard conforming to ASTM D 4727, Triple Wall variety. The bursting strength of sheets combined to a thickness of 1 inch shall be from 1,800 to 2,000 pounds per square inch. Other materials may be used if the same protection is afforded the battery without increase in weight, cube or cost. Tape for sealing shall conform to PPP-T-76 or PPP-T-60. Materials which are not covered by applicable specifications or which are not specifically described herein shall be in accordance with applicable

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rules and regulations which govern the mode of transportation (see 3.8). The materials shall be free of defects and imperfections that will adversely affect the serviceability of the packaged and packed batteries and accessories (see 6.5).

3.3.1 Reclaimed material. Reclaimed material shall be used to the maximum extent possible without jeopardizing the intended use of the item.

3.4 Preservation and packaging. Preservation and packaging shall be Level A or commercial as specified (see 6.2).

3.4.1 Level A. When specified (see 6.2), nickel-cadmium batteries shall be shipped filled with electrolyte in a charged or discharged condition and without short-circuiting of cells. Appropriate shorting devices will be installed on all batteries and cells required to be shipped in discharged condition. Unless otherwise specified (see 6.2), the charged condition of batteries for shipment shall be as follows:

- a. Lead-Acid - Charged and Dry or Uncharged and Dry
- b. Nickel-Cadmium - Short-Circuited and Discharged
- c. Silver Zinc - Discharged and Dry

3.4.1.1 Cleaning and drying. Exterior surfaces of batteries shall be cleaned in accordance with process C-1 of MIL-P-116 and shall be dried in accordance with any applicable procedure therein.

3.4.1.2 Unpainted surfaces. Unpainted, uncoated, exterior ferrous metal surfaces of the batteries and accessories shall be coated with a corrosion preventive compound conforming to MIL-C-450 and applied in accordance with MIL-P-116.

3.4.1.3 Vent caps and covers. All vent caps and covers shall be tightened and vent holes closed by any suitable means. Vent caps employing rubber diaphragm valve or other plastic non-spillable devices shall be protected in such a manner that strain shall not be imposed on the valve.

3.4.1.4 Cable assemblies. The contact plug end of cables shall be wrapped with barrier material conforming to MIL-B-121, type I, grade A, class 2, or grade C, secured in place with tape conforming to PPP-T-60, type IV. Cable assemblies, when removed, shall be coiled to a minimum safe diameter and secured in place with tape, as specified above.

3.4.1.5 Top frame. Unless otherwise specified (see 6.2), a top frame shall be provided for each battery weighing over 25 pounds. The top frame shall be designed so that superimposed weight will bear only and directly on the top edges of the battery case or inter-cell connectors in a manner which will prevent damage to battery terminals, cell covers, and filler caps. The top frame shall be constructed to remain securely in place, provide a snug fit, extend as least 1/2-inch above the terminals and filler caps, and shall be flush with the outer edges of the battery case. When required, top frame shall have cutouts for terminal posts and filler caps. Top frames shall be constructed from wood; plywood; built-up fiberboard pads conforming to ASTM D 4727, type CF; weather-resistant triple-wall fiberboard conforming to PPP-B-640; polystyrene

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conforming to MIL-P-19644, type II, class 1; or a combination of these materials. Unless otherwise specified (see 6.2), the polystyrene shall have a minimum density of 3.0 pounds per cubic foot  $\pm 0.20$ .

3.4.1.6 Unit packaging. Unless otherwise specified (see 6.2), each battery shall be packaged as specified herein. When specified (see 6.2), the unit container shall be the shipping container for batteries weighing up to 150 pounds (see 3.5.1.1).

3.4.1.6.1 Batteries weighing up to 85 pounds. Each battery shall be packaged in a close-fitting fiberboard box conforming to PPP-B-636, class weather-resistant, style RSC; or when specified (see 6.2), PPP-B-640, class 2, style E. Unless otherwise specified (see 6.2), the sides, ends, and bottom of the box shall be lined the full height and width with fiberboard pads or sleeves conforming to ASTM D 4727, type CF, class domestic, variety DW, 1-inch thick polystyrene pads conforming to MIL-P-19644, type II, class 1, or when specified (see 6.2), foam-in-place conforming to MIL-P-26514, type II, class 2, grade C. A top frame as specified in 3.4.1.5 shall be provided for batteries weighing over 25 pounds. Closure of the box shall be in accordance with ASTM D 1974 or the box specification. When specified (see 6.2), the battery shall be packaged in a two-piece container, molded from polystyrene, conforming to MIL-P-19644, type II, class 1.

3.4.1.6.2 Batteries weighing over 85 pounds and not exceeding 150 pounds. Each battery shall be packaged in a close-fitting fiberboard box conforming to PPP-B-636, class weather-resistant, or when specified (see 6.2), PPP-B-640, class 2, style E, with fiberboard pads or sleeves and top frame as specified in 3.4.1.6.1. The box shall be closed in accordance with either ASTM D 1974, or the appendix to the box specification.

3.4.1.6.3 Batteries weighing over 150 pounds. Unless otherwise specified (see 6.2), individual batteries weighing over 150 pounds shall not require unit packaging. When specified (see 6.2), the battery shall be packaged in a fiberboard box conforming to PPP-B-640, as specified in 3.4.1.6.2, or in an inverted half-slotted box without cover, of weather-resistant fiberboard, conforming to PPP-B-640. The slip-over container shall be close fitting and shall not be less than 1 inch from the bottom of the battery. A top frame shall be provided as specified in 3.4.1.5.

3.4.1.6.4 Consolidated packaging. Cable assemblies and accessories, when furnished, shall be packaged in close-fitting fiberboard boxes conforming to PPP-B-636, class weather-resistant. The contents shall be cushioned to prevent movement within the boxes. The boxes shall be closed in accordance with method V of the appendix to the box specification or an applicable method in ASTM D 1974.

3.4.2 Commercial. The batteries shall be packaged in a manner which will insure arrival at destination in a satisfactory condition. Packaging shall comply with applicable carrier rules and regulations (see 3.8). When specified (see 6.2), batteries which are not considered hazardous in accordance with Title 49 of the Code of Federal Regulations shall be unit packed as specified in ASTM D 3951. Flammable, combustible, or toxic packaging materials (e.g., loose-fill polystyrene, wood excelsior, shredded paper, newspaper, wax paper, etc.) shall not be used.

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3.5 Packing. Packing shall be Level A, B, C, or commercial as specified (see 6.2).

3.5.1 Level A.

3.5.1.1 Batteries weighing up to 1,000 pounds. Unless otherwise specified (see 6.2), packaged and unpackaged batteries of like description, with accessories, shall be packed in close-fitting boxes conforming to PPP-B-601, overseas type; or PPP-B-621, class 2, style 2, 2-1/2, or 7. The sides, ends, and bottom of the boxes for unpackaged batteries weighing over 150 pounds shall be lined with fiberboard pads made up of laminated sheets to a minimum thickness of 1-inch fiberboard conforming to ASTM D 4727, class weather-resistant, type CF, variety DW. Unpackaged batteries weighing over 150 pounds shall be packed in a single tier, and when more than one battery is packed in the shipping container a sheet of nominal thickness of fiberboard conforming to ASTM D 4727, type, class, and variety, as specified above, shall be placed between each battery. The gross weight of each box shall not exceed 200 pounds, except style 7 box conforming to PPP-B-621, shall have skids provided in accordance with the applicable box specification. Blocking and bracing shall be in accordance with MIL-STD-1186 and shall be applied in a manner to prevent movement within the shipping container. When specified (see 6.2), the unit container for batteries weighing up to 150 pounds, packaged as specified in 3.4.1.6.1 and 3.4.1.6.2, shall be used as the shipping container.

3.5.1.2 Batteries weighing over 1,000 pounds. Unless otherwise specified (see 6.2), batteries weighing over 1,000 pounds with accessories shall be individually packed in a crate conforming to MIL-C-104, type I or II, style A, class optional, or MIL-B-26195, type II, style A or B, class optional, with plywood panels. Sides, ends, and bottom of the crate shall be lined with fiberboard pads as specified in 3.5.1.1. Anchoring, blocking, and bracing shall be in accordance with the appendix to MIL-C-104 and MIL-STD-1186.

3.5.2 Level B. Packaged and unpackaged batteries with accessories shall be packed as specified for level A, except that the boxes shall conform to PPP-B-621, class 1; or PPP-B-601, domestic type; MIL-B-26195, type I, style and class optional; or PPP-B-640, class weather-resistant. The gross weight of the boxes shall not exceed the weight limitations of the applicable box specification.

3.5.3 Level C. When specified (see 6.2), packaged and unpackaged batteries with accessories, shipped to Army activities, shall be packed in accordance with MIL-STD-1190.

3.5.4 Commercial. Batteries shall be packed in a manner which will insure arrival at destination in a satisfactory condition and which will be acceptable to the carrier at the lowest rates. Containers and packing shall comply with the requirements of the applicable rules and regulations of the transportation regulations specified in 3.8. When specified (see 6.2), batteries shall be packed in accordance with the requirements of ASTM D 3951.

3.5.5 Palletized unit loads. When specified (see 6.2), batteries shall be palletized in accordance with MIL-STD-147, load type I or VII, as applicable.

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3.6 Electrolyte. Electrolyte, when furnished with batteries, shall be prepared for shipment as specified herein.

3.6.1 Acid. The acid shall be packaged and packed in accordance with O-S-801. The level of packaging and level of packing shall be as specified (see 6.2).

3.6.2 Alkaline liquid. The alkaline liquid shall be packaged and packed in accordance with PPP-C-2020. The level of packaging and level of packing shall be as specified (see 6.2).

3.6.3 Alkaline powder. The alkaline powder shall be packaged and packed in accordance with PPP-C-2020. The level of packaging and level of packing shall be as specified (see 6.2).

3.6.4 Consolidated packaging. When specified (see 6.2), electrolyte packaged and packed in accordance with 3.6.1, 3.6.2, or 3.6.3 shall be packed inside the shipping container with the batteries. Electrolyte shall be separated from the batteries with wood separators. Cushioning, blocking, and bracing shall be provided to prevent movement. The quantity, weight restrictions, and other applicable requirements shall be in accordance with the rules and regulations in 3.8.

3.7 Marking.

3.7.1 Military agencies. Shipments to military agencies shall be marked in accordance with MIL-STD-129.

3.7.2 Civil agencies. Except for hazardous materials-transportation regulated batteries (see 3.8), shipments to civil agencies shall be marked in accordance with FED-STD-123.

3.8 Compliance with transportation regulations. All shipments shall comply, at a minimum, with the Uniform Freight Classification rules or National Motor Freight Classification rules. In addition, shipments of wet storage batteries or electrolyte packed inside the shipping container with batteries, shall be prepared for delivery in accordance with the requirements of the Code of Federal Regulations 46 CFR, Part 146, and 49 CFR, Parts 100-179. Shipments to Outside Continental United States (OCONUS) locations shall be packaged, packed, marked, labeled and certified to the International Maritime Dangerous Goods (IMDG) Code, or International Airline Transportation Association (IATA)/International Civil Aviation Organization (ICAO) Technical Instructions, whichever is applicable. When shipment by military airlift is required, the requirements of AFM 71-4/DSAM 4145.3/TM 38-250/NAVSUP PUB 505/MCO P4030.19E shall apply.

3.9 Fire-retardant materials. Fire-retardant and fire-resistant materials, for rigid unit containers, shall be used in lieu of non-fire-retardant materials for shipments to Navy, unless otherwise specified (see 6.2).

3.10 Workmanship. Workmanship shall be of such quality as will provide adequate protection when packaged and packed in accordance with the requirements contained herein to prevent deterioration and physical damage during handling, shipment and storage.



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## 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this document where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All preservation, packaging, packing and marking shall meet all requirements of section 3. The inspection set forth in this document shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in this document shall not relieve the contractor of the responsibility of ensuring that all preservation, packaging, packing, and marking submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.1.2 Material inspection. The contractor is responsible for ensuring that supplies and materials are inspected for compliance with all the requirements specified herein and in applicable referenced documents.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. Preproduction pack inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).

4.3 Preproduction pack inspection. When specified (see 3.1 and 6.2), a preproduction pack inspection shall be performed on one complete pack, packed for shipment and meeting the requirements of this specification. This inspection shall include the examination of 4.3.1 and when specified, the tests of 4.3.2 (see 6.2). The preproduction pack may be a preproduction model, first production model or a production unit. If a preproduction model is used, any preservation, packaging, and packing shall be removed by the contractor at no expense to the Government, when requested by the Government to facilitate comparison of the preproduction model and the production units.

4.3.1 Examination. The preproduction pack shall be examined for the defects in 4.4.3. Presence of one or more defects shall be cause for rejection.

4.3.2 Tests. When specified (see 6.2), the preproduction pack for level A and B packs shall be tested in accordance with 4.3.2.1 or 4.3.2.2, as applicable to the type of container.

4.3.2.1 Boxed batteries with or without electrolyte. Boxed units not exceeding 150 pounds shall be subjected to the free-fall drop test in accordance with FED-STD-101, Method 5007, Procedure D. Boxed units exceeding 150 pounds

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shall be subjected to the pendulum-impact test in accordance with Test Method 5012 of FED-STD-101 or the incline-impact test in accordance with Test Method 5023 of FED-STD-101.

4.3.2.2 Crated batteries with or without electrolyte. Crated units shall be subjected to the rail-impact test in appendix A to MIL-STD-1186. When it is impractical to test in accordance with the railcar method, the incline-impact test or the pendulum-impact test as specified in MIL-STD-1186, appendix A, may be substituted.

4.3.3 Failure criteria. Shifting of contents, visible damage to the contents, loosening or breaking of anchoring, blocking, bracing, and cushioning within the container shall constitute failure of the test. Rendering the interior containers, liners and top frames ineffective in providing adequate protection to the contents shall be cause for rejection.

4.4 Quality conformance inspection. The quality conformance inspection shall include the examination as specified in 4.4.3.

4.4.1 Inspection stages. Inspection shall be in three stages as follows:

- a. The first stage shall include inspection of materials, methods, cushioning, top frames, containers, and marking of interior containers prior to placing packages in shipping containers.
- b. The second stage shall include inspection of cushioning, blocking, bracing, and anchoring of units inside of the shipping container.
- c. The third stage shall include inspection of the shipping container, closure, strapping, and marking of the complete pack as prepared for shipment.

4.4.2 Sampling. Sampling and inspection procedures shall be in accordance with MIL-STD-105. The unit of product shall be all packages or packs prepared for any applicable inspection stage in 4.4.1 that will comprise a complete pack. All packages or packs offered for delivery at one time shall be considered a lot for the purpose of inspection. Guidance for inspection level and Acceptable Quality Level (AQL) is provided in 6.6. If an inspection lot is rejected, the contractor may rework it to correct the defects, or screen out the defective units and resubmit for a complete reinspection. Resubmitted lots shall be reinspected using tightened inspection. If the rejected lot was screened, reinspection shall be limited to the defect causing rejection. If the lot was reprocessed, reinspection shall be performed for all defects. Rejected lots shall be separate from new lots and shall be clearly identified as reinspected lots.

4.4.3 Examination. Each unit selected shall be examined for defects listed in table I. Each attribute within each classification of multiple defects shall constitute one defect.

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TABLE I. Classification of defects.

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*-----*				
*Classification	Defects	Requirement	Paragraph	*
*-----*				
*Critical:				*
*None defined				*
*Major:				*
*101	Batteries not packaged and packed in an upright position. Charged batteries not protected against short-circuiting. Vent openings not sealed as specified.	3.2		*
*102	Materials not as specified and obviously defective or not suitable for the purpose intended.	3.3		*
*103	Condition of batteries not as specified.	3.4.1		*
*104	Exterior surfaces of batteries not properly cleaned. Unpainted surfaces not coated with a preservative when required.	3.4.1.1 and 3.4.1.2		*
*105	Cable assemblies not wrapped or coiled and secured with tape.	3.4.1.4		*
*106	Materials and construction of top frame not as specified.	3.4.1.5		*
*107	Unit containers not used as the shipping container when specified. Fiberboard boxes not as specified. Unit container not lined with fiberboard pads or sleeves. Top frame not provided when required or omitted on batteries weighing up to 25 pounds when specified. Polystyrene containers not provided when specified. Foam-in-place not provided when specified. Batteries weighing over 150 pounds not packaged when specified.	3.4.1.6.1, 3.4.1.6.2, and 3.4.1.6.3		*
*108	Consolidated packaging not as specified. Boxes not closed as specified.	3.4.1.6.4		*
*109	Shipping containers (boxes and crates) not as specified. Sides, ends, and bottom not lined with fiberboard. Sheets of fiberboard not provided between unpackaged batteries. Skids not provided on shipping containers over 200 pounds. Unit containers not used as the shipping container when specified. Blocking, bracing, and anchoring missing or inadequate.	3.5.1.1, 3.5.1.2, and 3.5.2		*

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TABLE I. Classification of defects. (continued)

*-----*				
*Classification	Defects	Requirement	Paragraph	*
*-----*				*
* 110	Palletized loads not in accordance with referenced standard.	3.5.5		*
* 111	Electrolyte not packaged or packed in accordance with referenced specifications.	3.6, 3.6.1, 3.6.2, and 3.6.3		*
* 112	Consolidated packaging of electrolyte with batteries not as specified.	3.6.4		*
* 113	Marking illegible, incomplete, incorrect or missing.	3.7		*
* 114	Shipments do not meet the minimum requirements of transportation regulations. Shipping containers are not UN tested and certified in accordance with the applicable transportation requirements.	3.8		*
* Minor:				*
* 201	Improper closure of fiberboard boxes.	3.4.1.6.1, 3.4.1.6.2, and 3.4.1.6.3		*
* 202	Fire retardant materials not used when required.	3.9		*
* 203	Poor workmanship.	3.10		*
*-----*				*

## 5. PREPARATION FOR DELIVERY

This section is not applicable to this specification.

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. It is intended that this specification be used in the preservation, packaging, packing, and marking of storage batteries with or without electrolyte, charged and dry or uncharged and moist, and be used for reference in section 5 of specifications or for direct reference in contracts, purchase orders, or in preparation of packaging data sheets.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in acquisition documents:

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- a. Title, number, and date of this specification
- b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2)
- c. When a preproduction pack is required and the timeframe required for submission of the preproduction pack (see 3.1 and 4.3)
- d. When the sealing of vent openings in batteries is other than specified (see 3.2)
- e. When pads and inserts required for aircraft batteries are to be constructed of PPP-B-640 fiberboard (see 3.3)
- f. Level of preservation and packaging and the level of packing required (see 3.4 and 3.5)
- g. When batteries are to be preserved and packaged level A only (see 3.4.1)
- h. When the charged condition of batteries is other than specified (see 3.4.1)
- i. When nickel-cadmium batteries are to be shipped filled with electrolyte in a charged or discharged condition (see 3.4.1b)
- j. When a top frame for batteries over 25 pounds shall not be provided (see 3.4.1.5)
- k. When the density of polystyrene is other than specified (see 3.4.1.5)
- l. When unit packaging is other than specified (see 3.4.1.6)
- m. When the unit container shall be the shipping container (see 3.4.1.6)
- n. When the battery is to be packaged in a PPP-B-640 fiberboard box (see 3.4.1.6.1, 3.4.1.6.2 and 3.4.1.6.3)
- o. When the sides, ends, and bottom of the unit container are not required to be lined with pads or sleeves (see 3.4.1.6.1)
- p. When foam-in-place shall be used (see 3.4.1.6.1)
- q. When the battery is to be packaged in a two piece polystyrene container (see 3.4.1.6.1)
- r. When batteries over 150 pounds require unit packaging (see 3.4.1.6.3)
- s. When batteries over 150 pounds shall be packaged in a fiberboard box or in a slip-over container (see 3.4.1.6.3)
- t. When batteries shall be unit packed in accordance with ASTM D 3951 (see 3.4.2)
- u. Level of packing required (see 3.5)
- v. When batteries weighing up to 1,000 pounds shall be packed other than as specified (see 3.5.1.1)
- w. When the unit container for the batteries weighing up to 150 pounds is to be used as the shipping container (see 3.5.1.1)
- x. When batteries over 1,000 pounds shall be packed other than as specified (see 3.5.1.2)
- y. When batteries are to be packed in accordance with MIL-STD-1190 (see 3.5.3)
- z. When commercial packing shall be in accordance with ASTM D 3951 (see 3.5.4)
- aa. When batteries are to be palletized (see 3.5.5)
- bb. Level of packaging and level of packing required for acid, alkaline liquid, or powder (see 3.6.1, 3.6.2, and 3.6.3)
- cc. When electrolyte shall be packed with batteries (see 3.6.4)
- dd. When non-fire-retardant materials may be used for packaging and packing materials (see 3.9)

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ee. When the preproduction pack is to be tested (see 4.3 and 4.3.2)

6.3 Data requirements. When this specification is used in an acquisition and data are required to be delivered, the data requirements shall be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved Contract Data Requirements List (CDRL), incorporated into the contract. When the provisions of DoD Federal Acquisition Regulations (FAR) Supplement, Part 27, Sub-Part 27.475-1 (DD Form 1423) are invoked and the DD Form 1423 is not used, the data should be delivered by the contractor in accordance with the contract or purchase order requirements.

6.4 Preproduction pack. Any changes or deviation of the production packs from the approved preproduction pack shall be subject to the approval of the contracting officer. Approval of the preproduction pack shall not relieve the supplier of his obligation to preserve, package, pack, and mark the batteries and electrolyte in accordance with this specification.

6.5 Recycled materials. Recycled materials (except for hazardous materials) are encouraged for use as long as they meet the requirements specified herein and in applicable specifications, standards, and other referenced documents (see 3.3).

6.6 Sampling procedures. Recommended inspection is level II and AQL is 2.5 (see 4.4.2).

6.7 Subject term (key word) listing.

Alkaline liquid  
Alkaline powder  
Electrolyte  
Lead-acid  
Nickel-cadmium

6.8 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

## MILITARY INTERESTS:

## CIVIL AGENCY COORDINATING ACTIVITIES:

Military Coordinating Activity

GSA - FSS

Navy - YD

PREPARING ACTIVITY

Custodians

Navy - YD

Army - ER

(Project PACK-0978)

Navy - YD

Air Force - 99

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#### Review Activities

Army - AT, CR, SM  
Navy - AS, SA, SH  
Air Force - 80  
DLA - GS

#### User Activities

Army - ME  
Navy - EC, MC

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Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein.