



AUSTRALIAN GOVERNMENT

AUSTRALIAN DEFENCE STANDARD

DEF(AUST)1000C Part 6/ Issue 3

Dated Sep 2009

Replacing/Superseding

DEF(AUST)1000C PART 6 Amendment 1

Dated 01 Dec 2004

ADF PACKAGING; STANDARD PART 6: PACKING OF DANGEROUS GOODS (EXCEPT DANGEROUS GOODS CLASS 1), PACKAGING REQUIREMENTS AND PACKAGING MEDIUMS

*

PUBLISHED UNDER AUTHORITY
OF DEPARTMENT OF DEFENCE

DEPARTMENT OF DEFENCE NOTICE
THIS ON-LINE PUBLICATION IS A CONTROLLED COPY
OF DEF(AUST)1000C, PART 06.
CONFIRM ISSUE STATUS BEFORE USE -
CONTACT LAND ENGINEERING AGENCY,
TECHNICAL DATA CENTRE +
<mailto:LEATECHNICALDATA@DRNEX.DEFENCE.GOV.AU>
WHEN PRINTED THIS PUBLICATION IS AN
UNCONTROLLED COPY AND IS NOT SUBJECT TO
UPDATE OR AMENDMENT ACTION.

USAGE: Maritime Land Air

NSC:PACK

DEF(AUST)1000C

DOCUMENT MANAGEMENT INFORMATION

Sponsoring Defence Group:	Defence Materiel Organisation	
Sponsoring Organisation:	Land Systems Division	
Sponsoring Appointment:	DGLEA	
Specification Author:	Defence Packaging Committee	Approved: 23 Jul 09
Approval Authority:	DGLEA	Approved: 28 Sep 09
Executive Authority:	LEA -SEM	Approved: 24 Sep 09

Prepared by the Defence Packaging Committee of the Defence Standardisation Coordination Group.

The following Government, and industry organisations were consulted during the preparation of this document:

ARMY, RAN and RAAF
RAAFSALT
JLC

Published by:

Army Standardisation

This document is the property of the Department of Defence.

AMENDMENT LIST

AMENDMENT		EFFECTED	
NO	DATED	SIGNATURE	DATE

Revision Note

This document supersedes: DEF(AUST)1000C PART 6 / Issue 2 (Amendment No 1)

Historical Record

First Issued as DEF(AUST)0492: Packaging and Marking of Dangerous Substances for Consignment and Transit Storage (Other than Ammunition, Explosives, Oil and Lubricants and transport by Civil Aircraft) Amend No 2 Apr 1979 Cancelled. Replaced by DEF(AUST) 5492

Second Issue **DEF(AUST)5492A: Packaging, Marking and Transport of Dangerous Goods for Consignment**

Third Issue - DEF(AUST)5492B dated Nov 1991

New A Issue (in part) DEF(AUST)1000A PART 6: Packaging of Dangerous Goods (Except Dangerous Goods Class 1), Packaging Requirements and Mediums

New B Issue DEF(AUST)1000B PART 6 dated Apr 1997

New C Issue DEF(AUST)1000C PART 6 dated Jul 2000

Second Issue DEF(AUST)1000C PART 6 Amendment 1 dated Sept 2004

Released on DMO – LSD Internet Aug 2005

Blank Page

AUSTRALIAN DEFENCE STANDARD

DEF(AUST)1000C

ADF PACKAGING;

**PART 6: PACKING OF DANGEROUS GOODS
(EXCEPT DANGEROUS GOODS CLASS 1),
PACKAGING REQUIREMENTS AND PACKAGING MEDIUMS
STANDARD**

SEPTEMBER, 2009

This Standard supersedes DEF(AUST)1000C, PART 6 Amendment No. 1: Packing of Dangerous Goods (Except Dangerous Goods Class 1), Packaging Requirements And Packaging Mediums

This Standard supersedes the following RAAF AAP Packaging Specifications:

AAP 3533.032 Batteries Secondary (Wet Cell)

AAP 3533.033 Batteries Primary (Dry Cell)

AAP 3533.038 Adhesives and Sealing Compounds

Specific inquiries regarding the application of this standard to Requests for Tender or contracts should be addressed to the Ordering Authority named in the Request for Tender, or to the Quality Assurance Authority named in the contract, as appropriate.

Prepared by the Defence Packaging Committee (DPC) under the Authority of the Defence Standardisation Coordination Group.

This Standard is mandatory for use by the RAN, Australian Army and RAAF, and Contractors to the ADF.

WARNING (1)

This Standard may call for the use of substances and test procedures that may be injurious to health if adequate precautions are not taken. It refers to technical suitability only and in no way absolves the supplier or user from statutory obligations relating to health and safety at any stage of manufacture or use.

WARNING (2)

For timber products (ie packaging, dunnage and **plywood veneered products**) that are to be forwarded overseas please be aware of AQIS conditions on the export or import of timber products. Information on timber products is contained in DEF(AUST)1000, ADF Packaging, Part 10, AQIS Requirements, and AQIS Requirements for the Australian Wood Packaging Certification Scheme (IPSM-15) relevant information is contained at the following AQIS URL:

<http://www.daffa.gov.au/aqis/avm/military>

WARNING (3)

Environmental Impact / Materiel Minimisation.

In order to comply with Defence waste minimisation policy, users are reminded of their obligations to maximise use of recycled materials (where possible) and the intent of the National Packaging Covenant in material decisions. Further information is available at :

<http://www.defence.gov.au/environment> - waste

DEF(AUST)1000C is issued in 20 parts, with each part sub-divided into Sections.

The 20 parts are:

- PART 1: General Information¹
- PART 2: Packaging Requirements ¹
- PART 3: Packaging Practices and Materials¹
- PART 4: Standard Packaging Test Procedures ¹
- PART 5: Marking of Packages¹
- PART 6: Packaging of Dangerous Goods (Except Dangerous Goods Class 1);
Packaging Requirements and Packaging Mediums¹
- PART 7: Packaging for Materiel Susceptible to Damage by Electrostatic Discharge¹
- PART 8: Defective Packaging Reporting System¹
- PART 9: Requirements for Reusable Containers¹
- PART 10: Australian Quarantine Inspection Service (AQIS) Requirements¹
- PART 11: Unitisation¹
- PART 12: Bar Code Symbology¹
- PART 13: Packaging Material Catalogue
- PART 14: Minimum Packaging Specifications of Commercial Items¹
- PART 15: Packaging Specifications and Classification Systems¹
- PART 16: Creative Brief Template
- PART 17: Packaging ILS Checklist
- PART 18: Life Cycle Analysis
- PART 19: Caching
- PART 20: Techniques for Deployment, Packaging and Storage for Tropical
Conditions

¹ Denotes available at http://www.defence.gov.au/dmo/lsd/standards/def_aust_1000.cfm

This PART of the Defence Standard concerns the Packing of Dangerous Goods, Special Packaging Requirements for the ADF and Packaging Materials.

Two or more parts may apply to any one packaging requirement and it is essential that all parts be considered and used where appropriate.

This Standard does not apply to the packaging of ammunition and explosives (for packaging information refer to EO Division – Munitions Branch). Further guidance available at URL: TBA

It should be noted that this standard might not be applicable to the packaging of materiel already covered by detailed contractual packaging or production data. Examples are, but not limited to, ammunition, explosives, non-commercial foodstuffs, POL, vehicles, small craft, clothing, arms, armament, telecommunications equipment and systems.

Para No	TABLE OF CONTENTS	Page
1.	PURPOSE	9
2.	SCOPE	9
3.	APPLICABLE DOCUMENTS	9
4.	DEFINITIONS	11
5.	REQUIREMENTS	11
a.	by civil air	11
b.	by service air	11
c.	by road and rail	11
d.	by sea	12
e.	by post	12
5.4	Documentation	12
5.4.1	Air transport.	12
5.4.2	Certification for Civil or Service Air.	13
5.4.3	Road, Rail or Sea transport.	13
5.4.4	Certification for Civil or Service Road.	13
6.	SPECIAL PACKAGING REQUIREMENTS FOR THE ADF	14
6.1	ADF Personnel Packaging Dangerous Goods Qualification	14
6.2	Dangerous Goods Containers	15
6.5	Excepted Quantities Packaging	15
6.6	Limited Quantities Packaging	15
6.7	Manufacturers Packs	15
6.8	Inner Containers Glass	15
6.9	Materials	15
6.10	Box Liners	15
6.11	Unit Load Devices	16
6.12	Batteries Wet	16
6.13	Closure	16
7.	NOTES	16
7.1	Alterations to special packaging requirements	16
7.2	Inquiries	17
ANNEX A	DANGEROUS GOODS (DG) PACKAGING MATERIALS	19
A1.	DANGEROUS GOODS CONTAINERS	19
A2.	FIBREBOARD BOXES	19
A3.	BATTERY BOXES	19
A4.	FORMS	20
A5.	GENERAL MATERIALS	21
A6.	BOX LINERS	21
A7.	AIR RESTRICTION LABELS	22
A8.	CLASS LABELS	23
	Figure 1 - PACKAGING OF WET CELL BATTERIES IN APPROVED PACKAGING BOXES	27
	Figure 2 - PACKAGING OF DANGEROUS GOODS (OTHER THAN WET CELL BATTERIES)	28
ANNEX B	DANGEROUS GOODS (DG) PACKAGING INSTRUCTION PERISHABLE CARGO - USE OF REFRIGERANT (COLD CHAIN)	29

Table No	INDEX OF TABLES	Page
Table 1 - Fibreboard Boxes -UN specified for packaging GLASS, PLASTICS and METAL inner receptacles for DG Classes 2 to 9, to Packaging Group II specifications.		19
Table 2 - Fibreboard Boxes -UN specified for packaging PLASTICS and METAL inner receptacles for DG Classes 2 to 9, to Packaging Group II specifications.		19
Table 3- Containers Not Approved for Packaging Group II substances-.....		19
Table 4 - UN specified for packaging Batteries Wet Filled UN 2794, UN 2795 and UN 2800.		20
Table 5 - Fibreboard Wet cell Battery Boxes.....		20
Table 6 – Personal Protective Equipment (PPE).....		20
Table 7 - FORMS.....		20
Table 8 - GENERAL MATERIALS.....		21
Table 9 - BOX LINERS.....		21
Table 10 - AIR RESTRICTION LABELS.....		22
Table 11 - CLASS LABELS.....		23
Table 12 REFRIGERATED PACK - WARNING LABELS.....		31
Table 13 TABLE FOR CALCULATION OF REQUIRED AMOUNT OF DRY ICE.....		31

1. **PURPOSE**

- 1.1. This Standard will enable procurement, ordering authorities, and qualified personnel packing/filling dangerous goods to specify the correct packaging/filling mediums authorised for use by the Occupational Health and Safety Authority (OH&SA), Civil Aviation Safety Authority (CASA), Australian Dangerous Goods Code 7 and Inter-Governmental Maritime Consultative Organisation.

2. **SCOPE**

- 2.1. This standard provides for the approved packaging materials of dangerous goods within the Australian Defence Force (ADF).

3. **APPLICABLE DOCUMENTS**

- 3.1. Reference may be necessary to the latest issue of the following documents:

3.1.1. **Department of Defence**

- 3.1.1.1. Defence Safety Manual (SAFETYMAN)

For Defence personnel only: SAFETYMAN is available on the DRN at the following URL: <http://defweb.cbr.defence.gov.au/home/documents/departamental/mdepartm.htm>

- 3.1.1.2. AAP 3631.001 - RAAF Manual of Movements

Air Force documents are available from:
Defence Air Publications Agency (DAPA), RAAF Williams LAVERTON, VIC, 3027

For Defence personnel only: These documents are available on the DRN at the following URL: <http://wilap006.sor.defence.gov.au/>

- 3.1.1.3. **For Defence personnel only:** All Defence personnel involved in the management of dangerous goods can now access the ADG7 from the dangerous goods page on the OHSC website by viewing support tools and then selecting element 6 (Publications): at the following URL : <http://ohsc.defence.gov.au/Programs/DangerousGoods/>.

- 3.1.1.4. **Explosive Ordnance Publications.**

Defence Explosive Ordnance Classification Listing (DEOCL) and Defence Explosive Ordnance Publications (DEOP) are available on the DRN to service personnel.

For Defence personnel only: the publications are available on the DRN at the following URL:

<http://intranet.defence.gov.au/jlc/sites/DOS/comweb.asp?page=398&Title=Publications>

DEOP 103(AM1) available on the DRN at the following URL:

[http://intranet.dpo.mil.au/avpubs/aaplib/DEOP_103B1B4\(AM1\)/p3s6c1.pdf](http://intranet.dpo.mil.au/avpubs/aaplib/DEOP_103B1B4(AM1)/p3s6c1.pdf)

- 3.1.1.5. **Webforms**

- 3.1.1.5.1. Forms required for consignment of dangerous goods are listed at [Table 7](#). Printing of forms may require access to colour print facility.

For Defence personnel only: Webforms are available on the DRN at the following URL:<http://library.dcb.defence.gov.au/standards/standards.nsf>
<http://intranet.defence.gov.au/webforms/>

- 3.1.2. **Air and Space Interoperability Council (ASIC).** Air standard 44/9E: Handling and Documentation of Dangerous Cargo for Air Transportation.

Air standard 44/9E can be requested from the ASIC via the ASIC webform at the following URL: http://www.dtic.mil/asic/asic_doc_request.htm. The ASIC document listing is available at URL: <http://www.dtic.mil/asic/docs/DocList.htm>

3.1.3. **National Transport Commission.** Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code) Edition 7. Code access at the following URL: <http://www.ntc.gov.au/ViewPage.aspx?DocumentId=01147>

3.1.4. **International Air Transport Association**

3.1.4.1. Dangerous Goods Regulations (Current edition)

3.1.4.2. Perishable Cargo Manual

For Defence personnel only: These documents are available from the Defence Library Service at the following URL: <http://library.defence.gov.au/> , and Defence Air Publications Agency (DAPA), RAAF Williams LAVERTON, VIC, 3027

These documents are available from: Australian Federation of International Forwarders, (AFIF) available at the following URL: www.afif.asn.au
Address: 152 Bunnerong Rd, PAGEWOOD NSW 2035 - Telephone: (02) 9314 3055

For Defence personnel only: These documents are available on the DRN at the following URL: <http://wilap006.sor.defence.gov.au/>

3.1.5. **Australia Post**

3.1.5.1. Dangerous and Prohibited Goods Postal Guide.

This document is available from AUSTPOST webpage at :

<http://auspost.com.au/BCP/0,1080,CH3851%257EMO19,00.html>

3.1.6. **Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)**

3.1.6.1. Code of Practice for the Safe Transport of Radioactive Substances

This document is available at the following URL:

<http://www.arpansa.gov.au/publications>

3.1.7. **Inter-Governmental Maritime Consultative Organisation**

3.1.7.1. International Maritime Dangerous Goods Code

3.1.7.2. Australian Supplement to the International Maritime Dangerous Goods Code

This document is available from:

Boat Books Pty Ltd, 31 Albany St CROWS NEST NSW 2065
(Ph 02 9439 1133), or

Hunter T & H Publications, 58a Gipps St COLLINGWOOD VIC 3066
(Ph 03 9417 5361)

3.1.8. **Standards Australia**

AS 1599 - Pressure-sensitive and water activated adhesive tape for packaging and office applications

AS 1678 - Emergency Procedure Guide – Transport –Various entries

AS 2216 - Packaging for poisonous substances

AS 2905 - Steel drums

AS ISO 16103 - Transport packaging for dangerous goods - Recycled plastics material

Copies of Australian Standards may be obtained from:

Publication Distributor - SAI Global

Office Hours: 8am to 5pm AEST

Telephone: 131 242

Facsimile: 1300 65 49 49
Overseas Telephone calls +61 2 8206 6010
Overseas Faxes +61 2 8206 6020
Email: sales @sai-global.com
Web shop: <http://www.saiglobal.com/shop>

Copies of the standards may be obtained from the Contract Authority.

For Defence personnel only: Standards Australia documents are available from the Defence Library Service at the following URL:

<http://library.dcb.defence.gov.au/standards/standards.nsf>

3.1.9. **United Nations**

3.1.9.1. ST/SG/AC.10/1- Recommendations on the Transport of Dangerous Goods

For Defence personnel only: This document is available from the Defence Library Service at the following URL: <http://library.defence.gov.au/>

4. **DEFINITIONS**

4.1. Reserved

5. **REQUIREMENTS**

5.1. All marking and packaging for the transport of dangerous goods shall be in accordance with the following documents relating to the mode of transport:

a. **by civil air**

Civil Aviation Regulation 1988, the Department of Transport and Communications of the Commonwealth of Australia has specified that dangerous goods shall be consigned and carried aboard an Australian aircraft, or a foreign civil aircraft in or over Australian territory in accordance with the IATA Dangerous Goods Regulations. (Current edition)

b. **by service air**

The carriage of dangerous cargo in Service aircraft shall be in accordance with the procedures and conditions contained in the RAAF Manual of Movements in conjunction with the IATA Dangerous Goods Regulations for Classes 2 to 9 and the DEOCL and DEOP for Class 1.

c. **by road and rail**

The Australian Dangerous Goods Code is the principal Federal, State and Territory reference for the transportation of dangerous goods by road and rail, and the basis of the Occupational Health and Safety (Safety Standards) Regulations 1994, part 8—The storage and handling of dangerous goods.

In line with the 2007 release of the Australian Dangerous Goods Code 7th edition (ADG7), Occupational Health, Safety and Compensation Branch (OHSC) has obtained copyright permission from the National Transport Commission and Department of Transport and Regional Services to place the Code on the Defence Intranet. It is a condition of the copyright agreement that the ADG7 is used solely for Defence purposes (non-commercial use), without alteration resulting from download, display, print and/or reproduction.

5.1.1. **For Defence personnel only:** All Defence personnel involved in the management of dangerous goods can now access the ADG7 from the dangerous goods page on the OHSC website by viewing support tools and then selecting element 6: at the following URL : <http://ohsc.defence.gov.au/Programs/DangerousGoods/>.

- 5.2. Any questions relating to the management and annual reporting of dangerous goods should be directed towards the respective Dangerous Goods Working Group member. Contact details are provided below:

Navy	Ms Maureen Trevanion	(02) 6266 4121
Army	SO2 Safety Operations DOHS-A	(02) 6265 4152
Air Force	WGCDR Grant Murphy	(02) 6266 3969
Defence Materiel Organisation	Mr Colin McNab	(02) 6266 7759
Defence Support Group	Mr Peter Hopner	(02) 6266 4309
Joint Logistics Command	Dr Gillian Peck	(03) 9282 6794
Defence Science and Technology Organisation	Mr George Cavanagh	(03) 9626 7789

d. by sea

Under the Navigation Act 1912, the carriage of dangerous goods by sea shall be in accordance with the International Maritime Dangerous Goods Code, published by the Inter-Governmental Maritime Consultative Organisation, and the Australian Supplement to the International Maritime Dangerous Goods Code. The governing body for IMDG is the International Maritime Organisation (IMO).

e. by post

Dangerous Goods must not be consigned by mail except as agreed by the postal Authority

- 5.3. Under the Environment Protection (Nuclear Codes) Act 1978, the transport of radioactive materials within Australia shall be in accordance with the Code of Practice for the Safe Transport of Radioactive Substances, and SAFETYMAN.
- 5.4. The marking of packages shall be in accordance with DEF(AUST)1000C Part 5 and the relevant regulations applicable to the mode of transportation.
- 5.5. **Documentation**
- 5.5.1. **All transport.**
- 5.5.1.1. **Certification for Class 1 Declarations.** As stated in DEOP 103(AM1) Part 3 Sect 6 Chap 1. Refer paragraph [3.1.1.4.](#)
- 5.5.1.2. **Certification for Class 7 Declarations.** At time of document release this certification authority is unknown.
- 5.5.1.3. **Acceptance for Class 7 Declarations.** Only personnel who have completed one of the following courses DGPACKACCEPTALL or DGPACKACCEPTAIR courses are authorised to sign the Shipper's Declaration for Dangerous Goods Form AB788 for road, Form ST160 and Form ST163 Acceptance for Air - Any Mode.
- 5.5.2. **Air transport.** When consigning dangerous goods by Air, **the shipper** is required to document all consignments on a form **ST160 - Shipper's Declaration for Dangerous Goods.**

Special requirements to be aware of are as follows;

- a. wording must be in **English**, it must be **neat** and **legible**, the ST 160 form may be hand written or typed;
- b. at least **two copies** of the **declaration** must be completed for Civil Air, and **four copies** for Service Air. All copies must include the side hatchings in red;
- c. more than one item or class may be entered on the ST 160 form, however, this is provided all the dangerous goods are to be shipped as one consignment, and to the same destination; and
- d. a shipper's declaration that has been **amended** or **altered** must be signed with the **same** signature used to sign the **documents certification**;
- e. for Civil Air and Service Air , **use only full words**, no abbreviations are permitted;
- f. the completed ST 160 form authorises the movement of a consignment from consignor to the consignee as stated on the ST 160 form.

5.5.3. **Certification for Civil Air and Service Air.** For all dangerous goods, other than Classes 1 and 7, personnel who have completed one of the following courses are authorised to sign the ST 160 form, Shipper's Declaration for Dangerous Goods.

- a. **DGPACKACCEPTAIR.** Personnel who have successfully completed the course and whose qualification is still current.
- b. **DGPACKACCEPTAIR** (Army Version). Personnel who have successfully completed the course and whose qualification is still current. (Does not include training in Class 7).
- c. **DGPACKACCEPTALL.** Personnel who have successfully completed the course and whose qualification is still current.

NOTE: For Class 7 - Personnel trained in the courses listed at paragraphs a & c are qualified only to Class 7 acceptance. Packaging of Class 7 items is not included in any of the training.

5.5.4. **Road, Rail or Sea transport.** When consigning dangerous goods by road, rail or sea **the shipper** is required to document all consignments on a form, **AB 788 - Shipper's Declaration for Dangerous Goods.**

Special requirements to be aware of are as follows;

- a. wording must be in **English**, it must be **neat** and **legible**, the AB 788 form may be hand written or typed;
- b. at least **four copies** of the declaration must be **completed**; all copies must include the side hatchings in red;
- c. more than one item or class may be entered on the AB 788 form, however, this is provided all the dangerous goods are to be shipped as one consignment, and to the same destination; and
- d. a shipper's declaration that has been **amended** or **altered** must be signed with the **same signature** used to sign the **documents certification**;
- e. for civil use, **use only full words**, no abbreviations are permitted;
- f. the completed AB 788 form, authorises the movement of a consignment from consignor to the consignee as stated on the AB 788 form.

5.5.5. **Certification for Civil or Service Road.** Only personnel who have completed one of the following courses are authorised to sign the AB 788 form, Shipper's Declaration for Dangerous Goods - Surface Mode.

- a. For bulk dangerous goods of division 2.1 and class 3 petroleum products only;
 - (i) **operator petroleum;** or
 - (ii) **bulk fuel tanker operator;** or
 - (iii) **aviation ground crewman;** or
 - (iv) **DGPACKACCEPTALL.** Personnel who have successfully completed the course and whose qualification is still current.
- b. For all other dangerous goods, other dangerous goods, other than classes 1 and 7;
DGPACKACCEPTALL. Personnel who have successfully completed the course and whose qualification is still current.

6. SPECIAL PACKAGING REQUIREMENTS FOR THE ADF

- 6.1. All personnel engaged in the **packaging and acceptance** of dangerous goods for carriage by any mode of transport are required to complete and pass the Dangerous Goods Packaging Course. Service Dangerous Goods (DG) courses are conducted throughout Australia at various locations by RAAF School of Administration and Logistics Training (RAAFSALT), Dangerous Goods Training School (DGTS), Wagga Wagga NSW. The course qualifies personnel to consign, pack and prepare dangerous goods for movement by Air, Road, Rail or Sea. The qualification remains current for a period of two years from the date of issue, (stated on the certificate of training) by RAAFSALT - DGTS.
- 6.2. Personnel engaged in the **acceptance only** of dangerous packed for air, are required to complete and pass the Dangerous Goods accept Air. The course is conducted at Air Movements Training and Development Unit (AMTDU) located at RAAF base Richmond NSW. The course qualifies personnel to accept dangerous goods for travel by air authorising the move by completing Form ST161. The qualification remains current for a period of two years from the date of issue, (stated on the certificate of training) by AMTDU.
- 6.3. **NOTE:** Both the DGPACKACCEPTAIR Cse (AMTDU) and DGPACKACCEPTALL Cse (RAAFSALT) qualify their respective personnel to **accept** DG for travel by air.
- 6.4. Dangerous substances, unless otherwise specified (eg Limited Quantities), are to be packed only in UN specified Dangerous Goods containers which bear the United Nations packaging symbol and markings described in the publications listed at paragraph 3.1. Containers may be re-used only when it can be determined that they are in a serviceable condition and that there is no contamination of a hazardous nature or no dangerous reaction will result due to the nature of the previous contents.
NOTE: Containers which are contaminated. Dangerous Goods containers should not be reused. Containers could be contaminated with a hazardous substance such as Beryllium or radioactive chemicals, toxic or infectious substances.
- 6.5. All personnel engaged in the packing of dangerous goods are to ensure that inner containers, which form part of combination packagings, meet UN specifications and are similarly approved for air transport.
- 6.6. A list of General Purpose dangerous goods containers, UN specified to meet Packaging Group II and III requirements are listed at ANNEX A.
NOTE: Packaging Group 1 Packaging Materials. General Purpose dangerous goods containers, UN specified to meet packaging Group 1 performance standards are not available as general purpose dangerous goods containers. Packaging Materials for this group must be supplied correctly pre-packaged from the supplier or qualified packaging materials must be sourced from contract suppliers.

6.7. **Excepted Quantities Packaging**

6.7.1. Packaging requirements for Excepted Quantities packaging, for air transportation, are contained in the IATA Dangerous Goods Regulations.

6.8. **Limited Quantities Packaging**

6.8.1. Packaging requirements for Limited Quantities packaging, for air transportation, are contained in the IATA Dangerous Goods Regulations.

6.8.2. Packaging requirements for Limited Quantities packaging, for road, rail and sea are contained in the ADG7 and IMDG respectfully.

6.9. **Manufacturers Packs**

6.9.1. UN specified Manufacturers packaging, which have been breached, are not to be re-used. These containers have been approved to consign specific quantities of specified classes of dangerous substances and cannot be used as general purpose dangerous goods packaging.

6.10. **Inner Containers Glass**

6.10.1. Glass inner containers are to be protectively wrapped with corrugated fibreboard sheeting (refer Table 6 for details NSN's 8135-66-090-9971 and 8135-66-090-9972) to prevent breakage from contact with other containers within a package. Fibreboard sheeting should be treated as an additional requirement to any other requirement for use of suitable cushioning material.

6.11. **Materials**

6.11.1. All packaging materials are to comply with the appropriate specifications. To ensure that no hazardous reaction occurs in the event of breakage or leakage, all packaging materials are to be compatible with the substance carried. Cushioning and absorbent materials approved for use are:

- a. vermiculite, exfoliated (respirators are to be used when handling vermiculite), Refer Table 6 for details ; and
- b. foam, shredded paper and other cushioning material that does not react with contents of inner packaging (used mostly for packaging solids).

NOTE: Vermiculite is not to be reused. If a spillage does occur and is not detected then incompatible substances could be transported together within the same container. When in use vermiculite is crushed, loses its absorbency and effectiveness and will become heavier.

6.11.2. Where cushioning and absorbent materials are required, they are to surround the commodity container to the minimum thickness of 20 mm. In addition, the quantity and disposition of absorbent materials in each outer packaging must be as follows;

- a. PACKAGING GROUP I (all modes) - sufficient absorbent materials to absorb the contents of all inner packaging.
- b. PACKAGING GROUP II AND III
 1. Road/Rail/Civil Air and Sea - sufficient absorbent material to absorb the contents of any one inner container; and where the inner containers vary in size, enough to absorb the contents of the inner package containing the greatest quantity of liquid.
 2. Service Air - sufficient absorbent material to absorb the contents of all inner packaging.

6.12. **Box Liners**

- 6.12.1. When specified, box liners are to conform to the requirements of the regulations applicable to the mode of transport. Where further guidance is required refer to DEF(AUST)1000, PART 3, SECTION G (NSN's of type LB1/WV1 liners are also listed at ANNEX A). Liners should always be **considered for use** in the following instances,
- a. When liquids in Classes 3, 4 or 8 or divisions 5.1 or 6.1 of Packaging Groups I or II, are packed in glass or earthenware inner packaging, for air shipment, liners conforming to DEF(AUST)1000, PART 3, SECTION G, LB1/WV1 must be utilised to contain any possible spillage's.
 - b. Wet Commodities - Wooden containers packed with liquid or wet substances are to be fitted with effectively sealed, waterproof and water-vapourproof box liners conforming to DEF(AUST)1000, PART 3, SECTION G, code LB1/WV1.
 - c. Dry Commodities - Wooden containers packed with dry substances are to be fitted with effectively sealed box liners to DEF(AUST)1000, PART 3, SECTION G, code LB2/C2. Where such substances may react with moisture or liquids, the box liners used is to be as for wet commodities.

6.13. **Unit Load Devices**

- 6.13.1. Unit Load Devices or Overpacks, if utilised, must conform to the requirements of and be packaged and labelled in accordance with those regulations appropriate to the shipping medium being utilised.

6.14. **Batteries Wet**

- 6.14.1. All wet cell batteries shipped by air transport are to be packed utilising the approved battery cases listed at ANNEX A.

6.15. **Closure**

- 6.15.1. Containers are to be closed in a manner appropriate to the nature of the contents. Such closures are to be designed to prevent leakage due to change in temperature, humidity or other conditions incident to transportation.
- 6.15.2. Screw top closures are to be inspected to ensure that the caps are fully and tightly screwed down to prevent leakage. Caps or containers with deformed gaskets or damaged threads are not to be used.
- 6.15.3. Stoppers or corks are to be used only when they are secured in position with wire, adhesive tape, plastic coating or other positive means.
- 6.15.4. Wooden boxes are to be secured with no less than two bands of flat steel strapping.
- 6.15.5. Where specified and when UN specified fibreboard boxes weight in excess of 30 kg, they are to be individually strapped with nylon or polypropylene strappings, in the same manner as wooden boxes.

7. **NOTES**

7.1. **Alterations to special packaging requirements**

- 7.1.1. UN specification for the Australian Defence Force's range of General Purpose Dangerous Goods boxes was granted subject to adherence to the Special Packaging Requirements contained in this Preface, Paragraphs 6.1 to 6.13.5 and ANNEX A. Any alterations or amendments to these requirements may negate the approvals granted by the Competent Authority (Health & Safety Organisation – Vic Office). All suggested alterations or amendments must be submitted to the Competent Authority (through the office below) for their concurrence prior to incorporation into this publication.

Land Engineering Agency

Specialist Engineering Services
Packaging, Handling, Storage & Transport Cell
☎: (03) 92827799
FAX: (03) 92829240; or as per contact details at paragraph 7.2.

7.2. **Inquiries**

7.2.1. General inquiries and suggested alterations to this document should be submitted on a Publication Improvement Report and Reply (PIRR) form (Form AO011) as included at the back of this document. The completed AO011 should be sent to:

Army Program Coordinator
Land Engineering Agency
Defence Plaza Melbourne
3rd Floor 661 Bourke Street
MELBOURNE VIC 3000

NB. Comments submitted do not constitute or imply authorisation to waive any requirement of the document or to amend contractual requirements.

7.2.2. Inquiries concerning the movement, packaging, marking and labelling of dangerous substances may be directed to:

Dangerous Goods Instructors, RAAFSALT - DGTS, RAAF Base WAGGA WAGGA, NSW 2651. The URL for RAAFSALT-DGTS is:
<http://intranet.defence.gov.au/raafweb/sites/RAAFSALT/comweb.asp?page=55959>

7.2.3. Inquiries concerning the movement only, may be directed to:

Headquarters 1st Joint Movement Group (HQ1JMOVGP), Kings Highway Bungendore ACT 2621.

Blank Page

**ANNEX A
DANGEROUS GOODS (DG) PACKAGING MATERIALS**

NOTE : THE FOLLOWING LIST OF CONTAINERS ARE NOT SUITABLE FOR THE PACKAGING OF EXPLOSIVES.

A1. DANGEROUS GOODS CONTAINERS

This Annex lists the dangerous goods containers, which have been approved for ADF use. The approvals were granted on the provision that the special requirements detailed at paragraph 6, and the container limitations listed below, be strictly adhered to. All ADF personnel **MUST** adhere to these requirements, paying particular attention to the following when selecting a suitable container;

1. The type of inner receptacle being packed, e.g. plastics, glass or metal.
2. The Class of Dangerous Good(s) being packaged (some containers are not approved for Class 2 substances – refer Table A2 Table 3).
3. The compatibility of substances being packed.
4. The gross mass of the container once packed, and
5. The type of outer container being utilised (UN specified or ACA approved).

A2. FIBREBOARD BOXES

Note: Fibreboard Boxes are not to be used for Class 1 Dangerous Goods unless otherwise approved by the Competent Authority.

Table 1 - Fibreboard Boxes - UN specified for packaging GLASS, PLASTICS and METAL inner receptacles for DG Classes 2 to 9, to Packaging Group II specifications.

	NSN	SIZE	MAX MASS
1.	8115-66-135-3793	300 x 230 x 240 mm	14 kg
2.	8115-66-135-3794	360 x 360 x 210 mm	25 kg
3.	8115-66-135-3795	534 x 350 x 295 mm	33 kg

Table 2 - Fibreboard Boxes - UN specified for packaging PLASTICS and METAL inner receptacles for DG Classes 2 to 9, to Packaging Group II specifications.

	NSN	SIZE	MAX MASS
1.	8115-66-135-3796	350 x 534 x 420 mm	45 kg
2.	8115-66-135-3797	534 x 534 x 520 mm	65 kg

NOTE: Friction lid paint cans are NOT to be packed for air transport in the aforementioned fibreboard boxes.

Table 3- Containers Not Approved for Packaging Group II substances-

1.	Containers other than those listed at tables 1 & 2 are not to be used unless otherwise approved by the Competent Authority.
----	------------------------------------------------------------------------------------------------------------------------------------

A3. BATTERY BOXES

Table 4 - UN specified for packaging Batteries Wet Filled UN 2794, UN 2795 and UN 2800. (for Air Transport)

NOTE: Sealing tape (NSN 7510-66-135-3681) must be used to seal inner liner. No more than one battery shall be packed in each individual box.

	NSN	SIZE	MAX MASS	GROSS	NOTES
1.	8145-66-121-5432	250 x 260 x 250	45 kg	57 kg	S/S WSE
2.	8145-66-121-6922	331 x 280 x 290	47 kg	59 kg	S/S WSE
3.	8145-66-131-7745	400 x 250 x 280	47 kg	60 kg	S/S WSE

Table 5 - Fibreboard Wet cell Battery Boxes

	NSN	SIZE	MAX MASS
1.	8115-66-142-8317	210 x 210 x 350 mm	12 kg
2	8115-66-142-8318	534 x 350 x 295 mm	50 kg

A4. Table 6 – Personal Protective Equipment (PPE)

	Risk	DESCRIPTION
1.	Inhalation (Low dust levels)	Class P2 (Particulate) respirator
2.	Inhalation (High dust levels)	Powered Air Purifying Respirator (PAPR) with Class 3 (Particulate) filter, an Air-line respirator or a Full-face Class P3 (Particulate) respirator
Data taken from EMEI Workshop E410 paragraphs 16 & 17 . Link to document		

A5. Table 7 - FORMS

Form	FORM
ST160	Shippers Declaration for Dangerous Goods
ST161	Dangerous Goods Acceptance Checklist
ST163	ST163 Radioactive Dangerous Goods Acceptance Check List
AB788	Shippers Declaration for Dangerous Goods -surface

Form	FORM
AC405	Technical Equipment Preparation Certificate. This item is available in hard-copy. Stocks may be obtained by following the ordering information in the Supplier section provided via link below.
Link to webforms: http://intranet.defence.gov.au/webforms/	

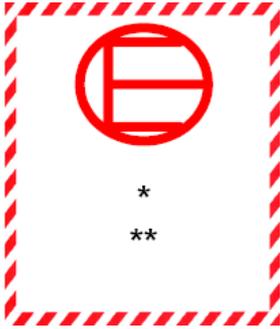
A6. Table 8 - GENERAL MATERIALS

NSN	UOI	ITEM
8135-66-090-9971	RO	Fiberboard,Corrugated Kraft Type Pulp,50 m Lg,1 M W,C Flute 154 To 167 Flutes Per Metre
8135-66-090-9972	RO	Fiberboard,Corrugated Kraft Type Pulp,50 m Lg,1 M W,C Flute 126 To 140 Flutes Per Metre
8135-66-091-4756	BG	Cushioning Material, Packaging (Vermiculite), 6 kg bag
8135-66-062-2998	EA	Edge Protector,Steel Strapping Metal,Ribbed,73 mm Lg,20 mm W,1 mm
8135-66-057-9206	RO	Strapping Plastics,Power Machine Type,12 mm W ,0.50 mm Thk,3000 M Lg,230 Lb Min Breaking Strength, Use In Automatic Strapping Machine
7510-66-135-3681	RO	Tape,Pressure Sensitive Adhesive Coating, Plastic Polyvinyl Chloride And Rayon, Red, 25 M Lg,48 mm W
7510-66-144-6283	RO	Tape, Pressure Sensitive, Adhesive, Cross Weave Filement, (Anti Burst), For Dangerous Goods Only, 45 Mr Lg, 50 mm W

A7. Table 9 - BOX LINERS

NSN	DESCRIPTION	LINER
8135-66-133-3508	Liner Box, Fiberboard , To Suit Box Dimensions 210 X 210 X 350mm	Box liner for 12kg ADF Wet Cell Battery Fibreboard Box
8135-66-133-3509	Liner Box, Fiberboard , To Suit Box Dimensions 534 X 350 X 295mm	Box liner for 50kg ADF Wet Cell Battery Fibreboard Box

A8. Table 10 - AIR RESTRICTION LABELS

NSN	LABEL
IATA CARGO AIRCRAFT ONLY	
7690-66-134-0694	Label Danger Do Not Load In Passenger Aircraft,Paper,Psa,Black/Orange,200 mm X 200 mm,Pack of 100 Labels
	Revised Label Design
IATA EXCEPTED QUANTITIES	
7690-66-134-0696	LABEL PAPER,100 mm BY 100 mm,INSCRIBED DANGEROUS GOODS IN EXCEPTED QUANTITIES PACK OF 100
	<p>This is the new label for IATA Excepted Quantities</p> <p>Hatching and symbol of the same colour, black or red, on white or suitable contrasting background.</p> <p>* Place for class or, when assigned, the division number(s).</p> <p>** Place for name of shipper or consignee, if not shown elsewhere on the package.</p>
LITHIUM BATTERIES	
7690-66-TBA	LABEL PAPER,120 mm BY 110 mm, QUANTITIES PACK OF 100
	<p>This is the new label for Lithium Batteries</p> <p>The border of the label must have red diagonal hatchings. Text and symbols black on a white background</p>
ARROWS (THIS WAY UP)	

NSN	LABEL
7690-66-062-4438	This Way Up, Hazard & Handling Label, (50x50mm)
7690-66-062-4439	This Way Up, Hazard & Handling Label, (100x100mm)
7690-66-062-4440	This Way Up, Hazard & Handling Label, (200x200mm)
MAGNETISED MATERIAL	
7690-66-062-4433	Magnetised Material, Hazard & Handling Label, (25x25mm)
7690-66-155-2185	Magnetised Material, Hazard & Handling Label, (50x50mm)
7690-66-062-4435	Magnetised Material, Hazard & Handling Label,(100x100mm)
7690-66-062-4434	Magnetised Material, Hazard & Handling Label, (200x200mm)
KEEP DRY	
7690-66-062-4415	Keep Dry, Hazard & Handling Label, (25x25mm)
7690-66-062-4416	Keep Dry, Hazard & Handling Label,(50x50mm)
7690-66-062-4417	Keep Dry, Hazard & Handling Label, (100x100mm)
7690-66-062-4418	Keep Dry, Hazard & Handling Label, (200x200mm)
KEEP AWAY FROM HEAT	
7690-66-062-4425	Keep Away From Heat, Hazard & Handling Label, (50x50mm)
7690-66-062-4423	Keep Away From Heat, Hazard & Handling Label, (100x100mm)
FROZEN CONSIGNMENTS	
7690-66-103-2139	LABEL, PAPER,PLASTICS COATED FACE,150 MM BY 150 MM, ADHESIVES AND SEALANTS ,EXTREMELY URGENT,MUST BE KEPT FROZEN,STORE BELOW 0 DEG C,
7690-66-103-2140	PAPER,PLASTICS COATED FACE,150 MM BY 150 MM,ADHESIVES AND SEALANTS EXTREMELY URGENT,KEEP OUT OF SUN ,STORE AT 2 TO 10 DEG C,

A9. Table 11 - CLASS LABELS

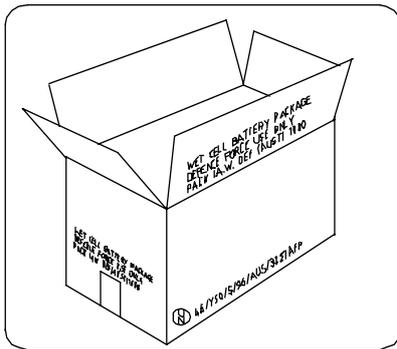
NSN	LABEL
CLASS 2 Division 2.1	
7690-66-052-5409	Flammable Gas, Class 2.1, Hazard & Handling Label, (25x25mm)
7690-66-052-4928	Flammable Gas, Class 2.1, Hazard & Handling Label, (50x50mm)

NSN	LABEL
7690-66-052-4929	Flammable Gas, Class 2.1, Hazard & Handling Label, (100x100mm)
7690-66-052-4930	Flammable Gas, Class 2.1, Hazard & Handling Label, (200x200mm)
CLASS 2 Division 2.2	
7690-66-052-5408	Non Flammable Compressed Gas, Class 2.2, Hazard & Handling Label, (25x25mm)
7690-66-052-4925	Non Flammable Compressed Gas, Class 2.2, Hazard & Handling Label, (50x50mm)
7690-66-052-4926	Non Flammable Gas, Class 2.2, Hazard & Handling Label, (100x100mm)
7690-66-052-4927	Non Flammable Gas, Class 2.2, Hazard & Handling Label, (200x200mm)
CLASS 2 Division 2.3	
7690-66-052-5410	Poison Gas, 2, Hazard & Handling Label, (25x25mm)
7690-66-052-4931	Poison Gas, 2, Hazard & Handling Label, (50x50mm)
7690-66-052-4932	Poison Gas, 2, Hazard & Handling Label, (100x100mm)
7690-66-052-4933	Poison Gas, 2, Hazard & Handling Label, (200x200mm)
CLASS 3	
7690-66-052-5412	Flammable Liquid, 3, Hazard & Handling Label, (25x25mm)
7690-66-052-4937	Flammable Liquid, 3, Hazard & Handling Label, (50x50mm)
7690-66-052-4943	Flammable Liquid, 3, Hazard & Handling Label, (50x50mm)
7690-66-052-4938	Flammable Liquid, 3, Hazard & Handling Label, (100x100mm)
7690-66-052-4939	Flammable Liquid, 3, Hazard & Handling Label, (200x200mm)
CLASS 4 Division 4.1	
7690-66-052-5413	Flammable Solid, 4, Hazard & Handling Label, (25x25mm)
7690-66-052-4940	Flammable Solid, 4, Hazard & Handling Label, (50x50mm)
7690-66-052-4941	Flammable Solid, 4, Hazard & Handling Label, (100x100mm)
7690-66-052-4942	Flammable Solid, 4, Hazard & handling Label, (200x200mm)
CLASS 4 Division 4.2	
7690-66-052-5414	Spontaneously Combustible, Class 4.2, Hazard & handling Label, (25x25mm)
7690-66-052-4944	Spontaneously Combustible, Class 4.2, Hazard & handling Label, (100x100mm)
7690-66-052-4945	Spontaneously Combustible, Class 4.2, Hazard & handling Label, (200x200mm)
CLASS 4 Division 4.3	
7690-66-052-5415	Dangerous When Wet, Class 4, Hazard & Handling Label, (25x25mm)

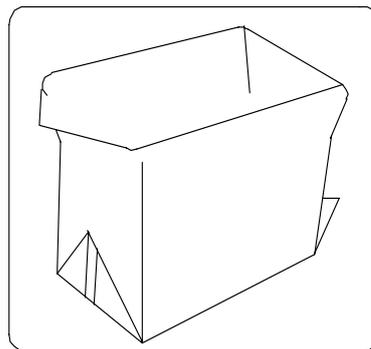
NSN	LABEL
7690-66-052-4946	Dangerous When Wet, Class 4, Hazard & handling Label, (50x50mm)
7690-66-052-4947	Dangerous When Wet, Class 4, Hazard & handling Label, (100x100mm)
7690-66-052-4948	Dangerous When Wet, Class 4, Hazard & handling Label, (200x200mm)
CLASS 5 Division 5.1	
7690-66-052-5416	Oxidizing Agent, Class 5.1, Hazard & Handling Label, (25x25mm)
7690-66-052-4949	Oxidizing Agent, Class 5 Hazard & Handling Label, (50x50mm)
7690-66-052-4950	Oxidizing Agent, Class 5, Hazard & Handling Label, (100x100mm)
7690-66-052-4951	Oxidizing Agent, Class 5, Hazard & Handling Label, (200x200mm)
CLASS 5 Division 5.2	
7690-66-052-5417	Organic Peroxide, Class 5, Hazard & Handling Label, (25x25mm)
7690-66-052-4952	Organic Peroxide, Class 5, Hazard & Handling Label, (50x50mm)
7690-66-052-4953	Organic Peroxide, Class 5, Hazard & Handling Label, (100x100mm)
7690-66-052-4954	Organic Peroxide, Class 5, Hazard & Handling Label, (200x200mm)
CLASS 6 Division 6.1	
7690-66-052-5418	Poison, Class 6, Hazard & Handling Label, (25x25mm)
7690-66-052-4955	Poison, Class 6, Hazard & Handling Label, (50x50mm)
7690-66-052-4956	Poison, Class 6, Hazard & Handling Label, (100x100mm)
7690-66-052-4957	Poison, Class 6, Hazard & Handling Label, (200x200mm)
CLASS 6 Division 6.2	
No current entries	
CLASS 7	
7690-66-052-5419	Radioactive (Category I), Class 7, Hazard & Handling Label, (25x25mm)
7690-66-052-4958	Radioactive (Category I), Class 7, Hazard & Handling Label, (50x50mm)
7690-66-052-4959	Radioactive (Category I), Class 7, Hazard & Handling Label, (100x100mm)
7690-66-052-4960	Radioactive (Category I) Class 7, Hazard & Handling Label, (200x200mm)
7690-66-052-5420	Radioactive (Category II), Class 7, Hazard & Handling Label, (25x25mm)
7690-66-052-4961	Radioactive (Category II), Class 7, Hazard & Handling Label, (50x50mm)
7690-66-052-4962	Radioactive (Category II), Class 7, Hazard & Handling Label, (100x100mm)
7690-66-052-4963	Radioactive (Category II), Class 7, Hazard & Handling Label, (200x200mm)

NSN	LABEL
7690-66-052-5421	Radioactive (Category III), Class 7, Hazard & Handling Label, (25x25mm)
7690-66-052-4964	Radioactive (Category III), Class 7, Hazard & Handling Label, (50x50mm)
7690-66-052-4965	Radioactive (Category III), Class 7, Hazard & Handling Label, (100x100mm)
7690-66-052-4966	Radioactive (Category III), Class 7, Hazard & Handling Label, (200x200mm)
CLASS 8	
7690-66-052-5406	Corrosive, Class 8, Hazard & Handling Label, (25x25mm)
7690-66-052-4967	Corrosive, Class 8, Hazard & Handling Label, (50x50mm)
7690-66-052-4968	Corrosive, Class 8, Hazard & Handling Label, (100x100mm)
7690-66-052-4969	Corrosive, Class 8, Hazard & Handling Label, (200x200mm)
CLASS 9	
7690-66-133-0444	Miscellaneous Dangerous Goods, Class 9, Hazard & Handling Label, (50x50mm)
7690-66-133-0445	Miscellaneous Dangerous Goods, Class 9, Hazard & Handling Label,(100x100mm)
7690-66-133-0446	Miscellaneous Dangerous Goods, Class 9, Hazard & Handling Label,(200x200mm)

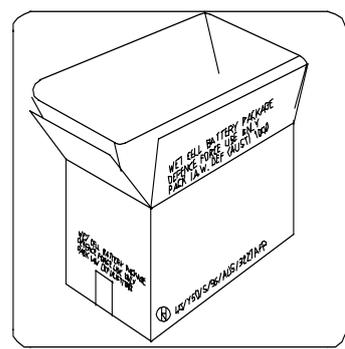
Figure 1 - PACKAGING OF WET CELL BATTERIES IN APPROVED PACKAGING BOXES



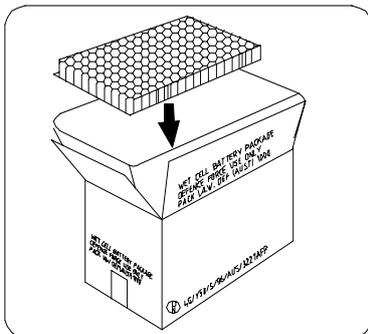
1. Set up fibreboard box -
NSN 8115-66-142-8317 (12 Kg)
*NSN 8115-66-142-8318 (12 Kg)
NSN 8115-66-142-8261 (50 Kg)
*NSN 8115-66-142-8262 (50 Kg)
& seal base with Tape, Pressure Sensitive, Adhesive, Burst Proof -
NSN 7510-66-144-6283



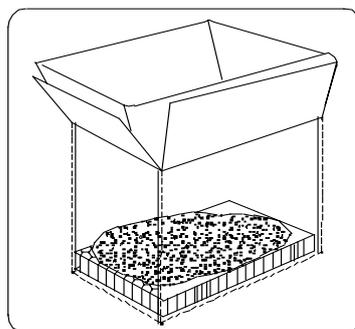
2. Set up approved dangerous goods box liner -
NSN 8135-66-133-3508 (12 Kg)
NSN 8135-66-133-3509 (50 Kg)



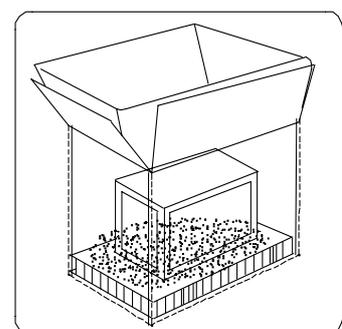
3. Insert liner into box.



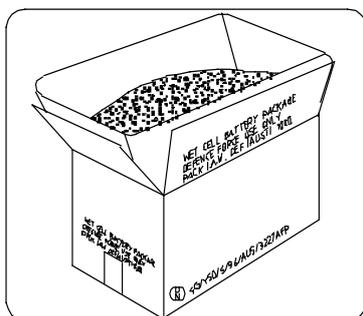
4. Insert cushioning pad as supplied with fibreboard box, into liner/box.



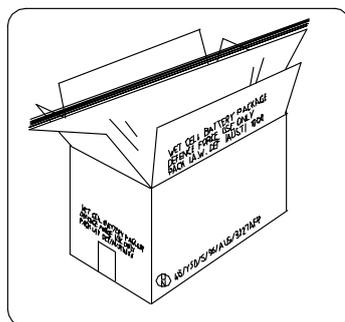
5. With pad in position partially fill liner with Vermiculite-
NSN 8135-66-091-4756
Pad should be completely covered with vermiculite.



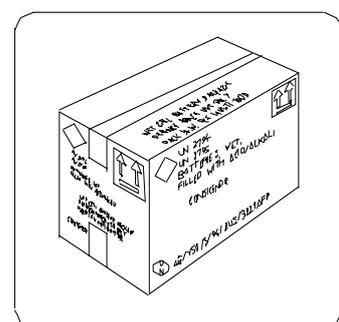
6. Place wet cell battery / batteries to be packaged into liner and locate on vermiculite and pad, in centre of box.



7. Completely fill liner / box to capacity with Vermiculite -
NSN 8135-66-091-4756



8. Close liner with Adhesive Tape
- NSN 8115-66-135-3681

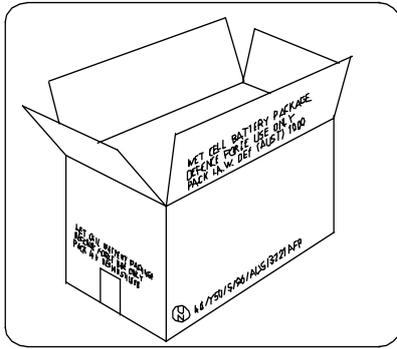


9. Seal packaged box with Tape, Pressure Sensitive, Adhesive, Burst Proof -
NSN 7510-66-144-6283

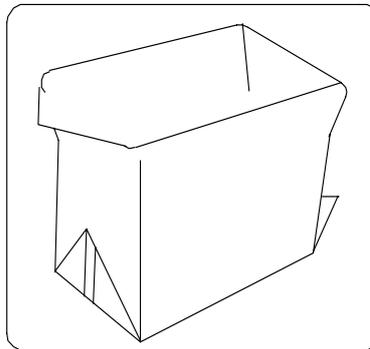
10. Apply suitable Dangerous Goods markings to box in accordance with Part 5 and the requirements of the relevant authority for mode of transport.

* NOTE:- Each size box has two NSN's because of two suppliers.

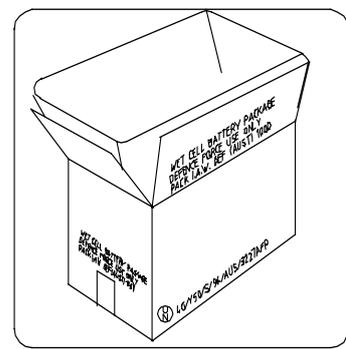
Figure 2 - PACKAGING OF DANGEROUS GOODS (OTHER THAN WET CELL BATTERIES) IN APPROVED PACKAGING BOXES



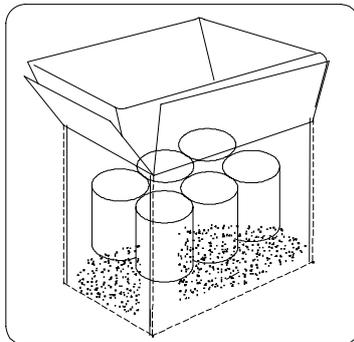
1. Set up fibreboard box as selected from paragraph A2 and seal base with Tape, Pressure Sensitive, Adhesive, Burst Proof - NSN 7510-66-144-6283



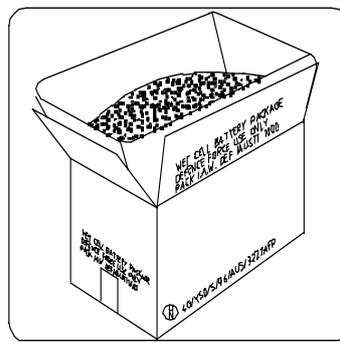
2. Set up approved dangerous goods box liner as selected from those listed at paragraph A3, suitable to box as selected in (1).



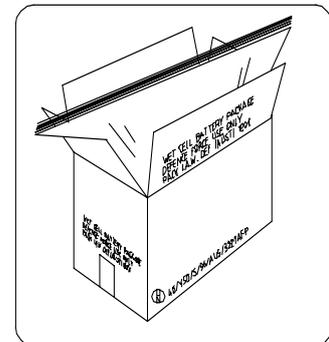
3. Insert liner into box.



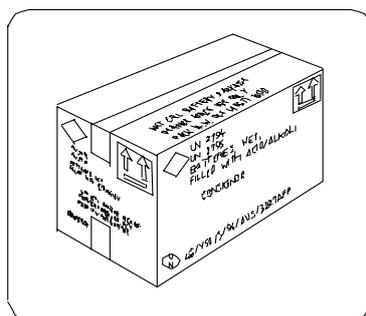
4. Partially fill liner with Vermiculite NSN 8135-66-091-4756 and locate items to be packaged on vermiculite in centre of box.



5. Completely fill liner / box to capacity with Vermiculite.



6. Heat seal or tape liner with Adhesive Tape - NSN 8115-66-135-3681



7. Seal packaged box with Tape, Pressure Sensitive, Adhesive, Burst Proof - NSN 7510-66-144-6283

8. Apply suitable Dangerous Goods markings to box in accordance with the requirements of the relevant authority for mode of transport.

ANNEX B
DANGEROUS GOODS (DG) PACKAGING INSTRUCTION
PERISHABLE CARGO - USE OF REFRIGERANT (COLD CHAIN)

B1. This Annex replaces RAAF AAP Pkg Spec 3533.038 Adhesives & Sealing Components. This information is provided to address the applicable packaging requirements for the movement of temperature sensitive items or perishables by service or commercial transport. To ensure the successful delivery of perishable shipments, in first class condition, consignors are advised to adhere to these requirements, paying particular attention to the following when selecting a suitable packaging method;

- 1.1 The type of outer container required to be utilised (UN specified or ACA approved);
- 1.2 The method of transport of the consignment (usually air);
- 1.3 The estimated total time-in-transport (time duration) for the consignment to reach its destination;
- 1.4 The availability of refrigeration facilities at each end of the transportation leg of journey for the consignment; and

B2 The type of refrigerant required to be used with the consignment shall be selected from:

B2.1 Dry Ice.

- 2.1.1 As dry ice is classified as dangerous goods when it is shipped as a refrigerant, compliance is necessary to DEF(AUST)1000C PART 6 and the applicable regulations relevant to the mode of transportation.
- 2.1.2 Dry ice is not suitable for fresh fruit and vegetables and not always compatible with some types of pharmaceutical and human products.
- 2.1.3 Only BLOCK dry ice is to be used. If Block dry ice is not available permission must be sought from the Unit Health and Safety Officer to use pellet dry ice. If pellet dry ice is used the quantity by weight must be twice that of block dry ice calculated from Table 2.

Table 2 is to be used to calculate the quantity of dry ice required to maintain the temperature of the pre-frozen consignment at the correct level for the estimated time of transportation. Correct packaging will ensure that the consignment will remain in frozen state for the duration specified in Table 4 with an external ambient temperature of up to 25 degrees C.

B2.2 Wet Ice

- 2.1.4 Wet ice has a limited life and is not effective for extremely low temperatures. The water run-off from its melting means that most perishables packed in or carried with wet ice will be classified as 'wet cargo' and strict packaging standards apply.

B2.3 Gel Ice

- 2.3.1 Gel ice is a lower temperature refrigerant than wet ice but not as low as dry ice. Gel ice is reusable and is a highly recommended form of refrigerant for use with perishable cargo.

B3. IATA PERISHABLE CARGO MANUAL (IPCM)

Note: the IPCM provides information in relation to the packaging requirements for the shipment of various commodities. To ensure that all issues relating to the type of cold chain consignment are addressed, reference may be necessary to the following chapters of the IPCM.

1. **Chapter 1 - Background and responsibilities.** This chapter details the Shipper and Carrier responsibilities and other facts relating to air transport within a cold chain.
2. **Chapter 2 - Facts and types of Perishables.** The types of perishables include fruits, vegetables, meat products, dairy products, frozen foods, pharmaceutical products, human products and other perishables. Adhesives and sealing compounds are to be treated as pharmaceutical products for distribution within a cold chain.
3. **Chapter 3 - Special Knowledge.** This chapter provides additional information relating to the certification of 'cold chains' and the use of qualified packaging methods and carriers.
4. **Chapter 6 - Documentation and Labelling.** This chapter details the applicable Government documents and additional air labelling and marking requirements.
5. **Chapter 8 - Packaging.** This chapter details the air shipment requirements and considerations for selection of packaging method. It also details the various types of approved packaging methods available.

- B4. Labelling.** A printed label shall be affixed to the outside of the fibreboard container showing the packed quantity and NATO Stock Number (NSN). The label shall be in accordance with DEF(AUST)1000 PART 5. An additional warning label, as selected from Table No. 1, shall be affixed to the top of the box ensuring that the time, date and quantity of refrigerant packed are manually enscribed on the label.

Note: Dispatch details are to be forwarded to the consignee unit by telephone/priority message. The consignee unit is to make arrangements for the collection of the consignment.

Table 12 REFRIGERATED PACK - WARNING LABELS

NSN	TYPE	ITEM DESCRIPTION	DIMENSIONS
7690-66-103-2139	Dry Ice	Label, paper, plastics coated face, ,adhesives and sealants, extremely urgent, must be kept frozen, store below 0 deg c	150mm (long) x 150mm (wide)
7690-66-103-2140	Water Ice	Label, paper, plastics coated face, ,adhesives and sealants extremely urgent, keep out of sun ,store at 2 to 10 deg c, do not freeze	150mm (long) x 150mm (wide)

Table 13 TABLE FOR CALCULATION OF REQUIRED AMOUNT OF DRY ICE TO MAINTAIN SUB ZERO TEMPERATURE OF A PRE FROZEN CONSIGNMENT

CARTON No.	QTY OF DRY ICE	PRODUCT VOLUME IN LITRES	PRODUCT VOLUME IN m ³	MAX TIME PRODUCT MAINTAINED BELOW -8°C	MAX GROSS WEIGHT OF CONSIGNMENT
1	5Kg	1Lt	0.004	35Hrs	14Kg
1	10Kg	1Lt	0.004	50Hrs	14Kg
2	5Kg	2.5Lt	0.01	20Hrs	25Kg
2	10Kg	2.5Lt	0.01	35Hrs	25Kg
2	15Kg	2.5Lt	0.01	55Hrs	25Kg
3	5Kg	5Lt	0.02	25Hrs	33Kg
3	10Kg	5Lt	0.02	45Hrs	33Kg
3	15Kg	5Lt	0.02	70Hrs	33Kg
4	5Kg	6.5Lt	0.03	30Hrs	45Kg
4	10Kg	6.5Lt	0.03	55Hrs	45Kg
4	15Kg	6.5Lt	0.03	75Hrs	45Kg
5	5Kg	12Lt	0.05	50Hrs	65Kg
5	10Kg	12Lt	0.05	75Hrs	65Kg
5	15Kg	12Lt	0.05	90Hrs	65Kg

B5. Packaging Instructions. Typical placement of refrigerants within the packages and recommended packaging procedures are detailed in the IPCM Figures 8.3.L and 8.3.N.

PUBLICATION IMPROVEMENT REPORT AND REPLY (PIRR)

1.1. Introduction

Correction of publication deficiencies depends largely on feedback from the users. Publication Improvement Report and Reply (PIRR) forms (Form AO011) provide a straightforward and readily available method for reporting deficiencies and suggesting improvements in the publication to the Sponsor.

1.1.1. Typical deficiencies include:

- errors on text, drawings, photographs, circuit diagrams, charts and tables;
- omission of procedures;
- ambiguous or inadequate data;
- conflict with other publications; and
- errors in additional information.

1.1.2. Form completion and submission

The originator completes the PIRR form stating, in their own words, the deficiencies in the publication and where applicable, suggested amendments. Any comments that exceed the space provided should be handwritten or typed on white paper and attached to the form. The form is to be verified and signed by the originator's supervisor.

In all cases completed PIRR forms are to be sent directly to the publication Sponsor:

*Assistant Program Coordinator
Army Standardisation
Land Engineering Agency
3rd Floor, Defence Plaza Melbourne
661 Bourke Street
MELBOURNE VIC 3000
<mailto:LEATechnicalData@drnex.defence.gov.au>
facsimile: (03) 962 22942.*

1.2. Sponsor Action

1.2.1. PIRR acknowledgement from a publication Sponsor does not constitute an approval authority to amend a publication process or procedure.

1.2.2. Once the PIRR form has been received, the sponsor shall acknowledge receipt and advise the originator of any proposed action.

1.2.3. Form AO 011. PIRR forms are available on the DRN within Web Forms in electronic format. Contractors without DRN access should obtain forms through the relevant Contract Authority.

NOTE 1: The PIRR web form (AO 011) is available on the DRN at the following URL:
<http://intranet.defence.gov.au/webforms/>

AO 011
Revised Oct 2007

Department of Defence

Publication Improvement Report and Reply

*Refer to the relevant PSMA in the National Telephone Directory
for guidance on form completion and submission*

Originator's file reference

Distribution
Original - To be returned to originator on completion
Copy 2 - Sponsor's copy

Originator's action

Sponsor's details		Publication no.	
		Date of issue	AL status
Volume, Topic or Part no.	Section no.	Chapter or WP no.	Page no.
Para or Fig or Table no.			
Brief summary of deficiency and suggested amendments			

Originated by

Printed name	Rank or title	Section	Phone no.	Fax no.
Originator's unit and business address				
Email address				Date

Verified by

Supervisor's comments			
Supervisor's signature	Printed name	Rank or title	Phone no.

Sponsor's action

Date received	Proposal action		
	<input type="checkbox"/> Accepted	<input type="checkbox"/> Not accepted	
Remarks			
Signature	Printed name		Rank or title
Appointment	Phone no.	Date	

1. REQUESTS FOR DOCUMENTS

Requests for copies of this Standard, or certain of the listed Applicable Documents, may be directed to the appropriate source listed below:

DEPARTMENT OF DEFENCE (Maritime)

Director Naval Platform Systems
Department of Defence (Navy Office)
Campbell Park Offices (CP4-SP-013)
CANBERRA ACT 2600
Attention: NSTDC
Telephone: (06) 266 2906
Facsimile: (06) 266 2105

DEPARTMENT OF DEFENCE (Land)

Land Engineering Agency
Attention: Technical Data Centre
Defence Plaza Melbourne
3rd Floor - 661 Bourke St
MELBOURNE VIC 3000
Email: LEATECHNICALDATA@DRNEX.DEFENCE.GOV.AU
Facsimile: (03) 9282 2942

DEPARTMENT OF DEFENCE (Air)

Aerospace Technical Standards Document Centre (ATSDC)
Common Services System Support Office (CSSSO)
Building L7-1
RAAF Williams
Laverton VIC 3027
Telephone: (03) 9256 4236
Facsimile: (03) 9256 4888

DEFENCE RESTRICTED NETWORK (DRN)

Army Standardisation:
<http://vbmweb.sor.defence.gov.au/SPECS/Triservice/Directory.htm>

Aerospace Technical Standards Document Centre
<http://wilap006.sor.defence.gov.au/Specs/defence.asp>

ADF Maritime Material Requirements Set:
<http://defweb.cbr.defence.gov.au/navsyscom/mrs/HomePage.htm>

(Note: The above websites addresses may change at any time without notice).

CROWN COPYRIGHT RESERVED

**PUBLISHED UNDER AUTHORITY OF
DEPARTMENT OF DEFENCE**

Copies of DEF(AUST) Documents are
obtainable from sources shown inside back cover