COMMONWEALTH OF AUSTRALIA

AUSTRALIAN DEFENCE STANDARD

DEF(AUST)1000C

ADF PACKAGING;

STANDARD

PART 1: GENERAL INFORMATION

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

ARMY, RAN and RAAF
Defence National Storage and Distribution Centre
Australian Institute of Packaging

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

Published by:
Army Standardisation

Sponsored by:
DGENG(A), Army Engineering Agency and the ADF Packaging Committee

AMENDMENT LIST

AMENDMENT		EFFECTED	
NO	DATED	SIGNATURE	DATE
1	JAN 2006		

AUSTRALIAN DEFENCE STANDARD

DEF(AUST)1000C

ADF PACKAGING

PART 1: GENERAL INFORMATION

JULY 2000

Prepared by the ADF Packaging Committee under the Authority of the Defence Standardisation Coordination Group.

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

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

This Standard supersedes DEF(AUST)1000B PART 1 : General Information.

This PART of the Standard implements the requirements of QSTAG 1150 : Glossary of Packaging Terms.

WARNING

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

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

PART 1:	General Information
PART 2:	Packaging Requirements
PART 3:	Packaging Practices and Materials
PART 4:	Standard Packaging Test Procedures
PART 5:	Marking of Packages
PART 6:	Packing of Dangerous Goods (Except Dangerous Goods Class 1); Packaging Requirements and Packaging Mediums
PART 7:	Packaging for Materiel Susceptible to Damage by Electrostatic Discharge
PART 8:	Defective Packaging Reporting System
PART 9:	Requirements for Reusable Containers
PART 10:	Australian Quarantine Inspection Service (AQIS) Requirements
PART 11:	Unitisation
PART 12:	Bar Code Symbology
PART 13:	Packaging Material Catalogue
PART 14:	Minimum Packaging Specifications of Commercial Items
PART 15:	Packaging Specifications and Classification Systems
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 ALl

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 Guided Weapons & Explosive Ordnance [GWEO]).

ACKNOWLEDGEMENTS
The ADF Packaging Committee (ADFPC) acknowledges the excellent contribution made by Mr John Bladen, Army Standardisation, Army Engineering Agency, whose diligence, hardwork and professionalism made possible the compilation of DEF(AUST)1000C from over 30 + Packaging DEF(AUST) and other relevant Packaging documents.
The ADFPC also acknowledges the significant efforts made by MAJ Mike Harwood, Mr Bill Plummer and Mr Bryant Butler, (Packaging Development Centre, Army Engineering Agency) and FSGT Dave Cowie and SGT Frank Van Groen (JLSA) who conducted the technical review of the document.
The ADF also acknowledges the contribution to the development of the document from the following:
Mr Barry Edmunds (DNSDC)
WOSN Alun Thomas (HMAS ALBATROSS)
WOSN Mick Apperley (DSUP-N)
Mr Errol Van Dort (PDC)
Mr Gino Carrazza (AEMA)
Mr Kym Harper (JLSA)

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1. PURPOSE

1.1 The purpose of this Standard is to provide guidance to those personnel responsible for or involved in the design, preservation, packing, handling, transportation and storage of stores and equipment. It contains information on the fundamental principles of packaging and the application of approved methods, acceptable materials and techniques to be used in the protection of stores and equipment. It provides guidelines, which will ensure adequate, uniform and economical protection to all items so that they will be received by the ultimate user in a serviceable condition regardless of any storage, handling or transportation hazards to which they may be subjected.

2. SCOPE

2.1 It is essential that all stores for the Services are delivered in a fit-for-use condition where and when they are required. Since the ultimate destination of stores cannot normally be anticipated at the procurement stage, efficient packing is the only solution to this essential requirement. This standard describes the principles of packaging as they apply to Defence materiel. It sets out the points to be considered when designing, specifying, ordering or using service packaging. To this end it details general concepts and methods from which specific packaging requirements are developed.

3. APPLICABLE DOCUMENTS

3.1 Reference may be necessary to the latest applicable documents that are contained in the introduction to each individual Part of this Standard. Specifications applicable to packaging in general are as follows:

ADHESIVES

AS 2131 - Adhesive Contact

DEF(AUST)1000 Pt 3 - Adhesives Waterproof.

BAGS AND SACKS

AS 2400.6 - Paper, and Paperboard.

AS 2400.8 - Textile bags, sacks and wrappings.

BARRIER MATERIALS

DEF(AUST)1000 Pt 3 - Barrier Material, Waterproofed, Flexible Packaging Grades.

MIL-PRF-131 - Barrier Materials, Watervaporproof, Greaseproof, Flexible, Heat-Sealable

MIL-PRF-22019 - Barrier Material, Transparent, Flexible, Sealable, Volatile Corrosion Inhibitor Treated.

DEF(AUST)1000 Pt 3 - Primary Wrapping Materials.

DEF(AUST)1000 Pt 3 - Moisture Barrier Materials

DMS 159 - Heavy Duty Aluminium Faced Mouldable Wrap

BOXES FIBREBOARD

DEF(AUST)1000 Pt 15 - Fibreboard, Corrugated Classification (Based on Short Column Crush Values).

DEF(AUST)1000 Pt 15 -Boxes and Sheet, Fibreboard, General Purpose, Specification and Standard Size Ranges for 1100 mm and 1165 mm Pallet. AL1

AS 3537 - Fibreboard Boxes - Manufacturing Practice

BOXES, OTHER THAN ALL WOOD

MIL-B 43666 - Boxes, Shipping, Consolidation.

BOXES PAPERBOARD

AS 2400.6 - Paper and Paperboard.

BOXES PLASTIC

DEF(AUST)1000 Pt 20 - Boxes Plastic

BOXES WOOD

DEF(AUST)1000 Pt 15 - Boxes, Wood, General Purpose Specification.

DEF(AUST)1000 Pt 15 - Boxes Wood, Panel Style up to $0.5m^3$ to suit 1100mm Module Palletised Load.

CANS

AS 2854 - Tin-plate Cans for General Use.

CLEANING DRYING AND PRESERVATION

DEF(AUST)1000 Pt 3 - Technical Requirements for Protection during Storage. “Cleaning, Drying and Preservation.”

CRATES

DEF(AUST)1000 Pt 15 - Crates, Wood, Specification.

CORROSION

DEF(AUST)1000 Pt 3 - Corrosion Preventive Compound; Water Displacing

CUSHIONING MATERIAL

DEF(AUST)1000 Pt3 - Cushioning Material Cellulosic, Packaging

DANGEROUS GOODS PACKAGING

DEF(AUST)1000 Pt 6 - Packing of Dangerous Goods (Except Dangerous Goods Class 1) Packaging Requirements and Mediums

IATA (by AIR) - International Air Transport Association.

IMDG (by SEA) - International Maritime Dangerous Goods Code.

ADGC - Australian Code for the Transport of Dangerous Goods by Road and Rail

NOTE: Refer to DEF(AUST)1000C PART 6 for links to these documents.

DESSICANTS

DEF(AUST)1000 Pt 3 -Desiccants Activated (Metric) AL1

AS 2400.18 - Use of Desiccants in Packaging.

DRUMS AND PAILS

AS 2905 - Steel Drums.

AS 2400.9.2 - Steel Drums.

ELECTROSTATIC SENSITIVE DEVICES

DEF(AUST)1000 Pt 7 - ADF PACKAGING - Packaging For Materiel Susceptible to Damage by Electrostatic Discharge.

BS EN 100015-1 - Protection of Electro Sensitive Devices

MIL-STD 1686 - Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment.

FIBREBOARD

DEF(AUST) 1000 Pt 15 - Classification System for Corrugated and Solid Fibreboard.

DEF(AUST) 1000 Pt 15 - Boxes and Sheet Fibreboard, General Purpose, Specification and Standard Size Ranges for 1100 mm and 1165 mm Pallet.

DEF(AUST) 1000 Pt 15 - Fibreboard, Corrugated Classification (Based on Short Column Crush Values).

DEF(AUST) 1000 Pt 15 - Fibreboard, Solid (Kraft Lined)

GLOSSARY OF TERMS

AS 2400.1 - Glossary of Packaging Terms.

DEF(AUST)1000 Pt 1 - ADF PACKAGING - General Information

AS 1230 - Glossary of Terms for Pressure Sensitive Adhesive Tapes.

AS 1057 - Quality Assurance and Quality Control - Glossary of Terms.

IDENTIFICATION

DEF(AUST)5047 - Identification Marking of Stores and Equipment.

DEF(AUST)1000 Pt 5 - ADF PACKAGING - Marking of Packages

INDICATOR

MS 20003 - Indicator, Humidity, Card, Three Spot, Impregnated Areas (Cobaltous Chloride)
MIL-I-26860 - Indicator, Humidity, Plug, Colour Change
AS 2400.18 - Use of Desiccants in Packaging.

LABELS

AS 2666 - Pressure Sensitive Adhesive Label Stock Paper.

AS 2581 - Pressure Sensitive Adhesive Plastic Labels for Permanent Use. (GP)

AS 1216 Pt 1 - Classification and Labels for Dangerous Goods.

LEVELS OF PACKAGING

DEF(AUST)1000 Pt 2 - ADF PACKAGING - Packaging Requirements

LINERS

DEF(AUST)1000 Pt 3 - Liner Box/Case; Water-Vapourproof or Waterproof.

MARKING

DEF(AUST)1000 Pt 5 - ADF PACKAGING - Marking of Packages.

DEF(AUST)1000 Pt 12 - ADF PACKAGING - Bar Code Symbology.

AS 3711.9 - Freight Containers - Coding, identification and marking.

MIL-STD-129 - Marking for Shipment and Storage.

METHODS

DEF(AUST)1000 Pt 3 - Cleaning Processes

DEF(AUST)1000 Pt 3 - Drying Processes.

DEF(AUST)1000 Pt 3 - Preservation Processes.

DEF(AUST)1000 Pt 4 - Environmental Testing of Service Material.

PACKAGING

DEF(AUST)1000 - ADF PACKAGING, Parts 1 to 20

DEF(AUST)1000 Pt 13 - Packaging for the Procurement of Commercial Items, (Minimum Requirements)

PAINT

AS 1580 - Paints and Related Materials - Methods of Test

PALLETS

AS 4068 - Flat Pallets for Materials Handling.

DEF(AUST)1000 Pt 11 - Dimensions of Defence Standard Units Loads.

PAPER

AS 2400.6 - Paper and Paperboard.

PLASTIC

AS 2767 - Plastic Containers for Transport of Materials.

AS 2400.17 - Packaging in Plastic Containers.

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Service Petroleum, Oil and Lubricants (POL) and DANGEROUS GOODS

DEF(AUST)206	-	Handbook of Liquid Fuels, Lubricants and Allied Products.
AS 2906	-	Fuel Containers - Portable - Plastics and Metal.
AS 1940	-	The Storage and Handling of Flammable and Combustible Liquids

SAMPLING PROCEDURES AND TABLES

AS 1199	-	Sampling Procedures and Tables Guide to AS 1199 - Sampling Procedures and Tables for Inspection by Attributes.

SEALING COMPOUND

DEF(AUST)1000 Pt 3	-	Dip-Sealing Compound.

STRAPPING

DEF(AUST)1000 Pt 3	-	Strapping, (Metallic and Non-Metallic).

TAPES

AS 1599	-	Pressure Sensitive Adhesive Packaging Tapes

TESTS

DEF(AUST)1000 Pt 4	-	Standard Packaging Test Procedures.
AS 2582	-	Complete, Filled Transport Packages - Methods of Test.
ASTM-D642-94	-	Containers Shipping, Compression Test for.

TIMBER

AS 1604	-	Preservative Treatment for Sawn Timber, Veneer and Plywood

4. DEFINITIONS

4.1 Not Applicable

5. DEFENCE PACKAGING COMMITTEE TERMS OF REFERENCE

5.1 Refer ANNEX A

6. SPECIFICATIONS

6.1 Specifications contain the precise and specific characteristics for each product. The abridged characteristics given in this Standard are intended to be only used for comparing the various products in the Standard.

7. NATO STOCK NUMBERS

7.1 The NATO Stock Number is made up of three parts e.g.:

9150-66-088-7267

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The first four digits are known as the NATO Supply Classification (NSC) and are divided thus; the first two digits represent the group or family e.g.: the group 91 is assigned to all fuels, lubricants, oils, and waxes; the third and fourth digits represent the class of item within the family e.g.:

Fuels, Lubricants, Oils, and Waxes	GROUP
Oils and Greases : Cutting, Lubricating and Hydraulic	CLASS

From the foregoing then, our example, 9150 is the NSC assigned to oils and greases, cutting, lubricating and hydraulic. The second part of the NATO Stock Number is the National Codification Bureau Code, a two-digit code used to represent the country responsible for the codification of an item and the assignment of the NATO Stock Number. Each particular country is allotted its own two digit code; e.g.: Australia - 66, UK - 99, France - 14, Germany - 12. The last seven digits - in our example 088-7267 are split into the two groups for convenience only. They actually form a single group of seven figures known as the Item Identification Number and they are allotted sequentially irrespective of the type of item being identified.

8. APPLICATION OF PRODUCTS

8.1 This Standard contains, in addition to other information, limited detail on the general application of the products. This information is intended as a guide only and is not to be considered as the authority for such use. The specific applications of products are contained in equipment maintenance and servicing instructions promulgated under the authority of respective Service Design Authorities.

9. HANDLING AND SAFETY PRECAUTIONS

9.1 The products described in this Standard vary greatly in their properties, toxicity and handling requirements.

9.2 Each of the data product safety sheets contains an indication of the relative hazards associated with the product described through reference to Handling and Safety Precautions. In this type of Standard, such information can only be of a general nature. More detailed information on the hazards associated with each product may be obtained through:

NAVY	Ship or Establishment Medical Officer
ARMY	Area Medical Officer/Regimental Medical Officer
RAAF	Base Environmental Health Officer
JLC	Environmental Officer
ADF	SAFETYMAN

9.3 The products described herein may contain additives of varying degrees of toxicity. Some products may also cause skin complaints or affect bodily functions by ingestion. Therefore, when handling these products:

a. protect hands with either barrier cream or suitable gloves;

b. wear protective clothing;

c. use a face shield where appropriate; and

d. avoid inhaling or swallowing the product.

Before handling these products, it is advisable to ascertain correct first aid procedures in case an accident occurs.

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9.4 **Flammability Classes**. The products in this standard have been graded into storage and handling classification according to the definitions set out in AS 1940-1993.

9.4.1 **Flammable liquid** - a liquid that is defined in the ADG Code as a Class 3 liquid. Class 3 liquid is subdivided into the following packaging groups:

		Flash point (closed-cup)	Initial Boiling point
PG I	A Class 3 liquid of Packaging Group I.	-	$\leq$ 35°C
PG II	A Class 3 liquid of Packaging Group II.	< 23°C	> 35°C
PG III	A Class 3 liquid of Packaging Group III.	$\geq$ 23°C $\leq$ 61°C	>35°C

9.4.2 **Combustible liquid** - any liquid other than a flammable liquid that has a flashpoint, and that has a firepoint less than its boiling point. Combustible liquids are divided into two classes as follows:

Class C1 - a combustible liquid that has a flashpoint of 150°C or less.

Class C2 - a combustible liquid that has a flashpoint exceeding 150°C.

NOTE: The boiling point is taken to mean that point at which it is no longer possible to achieve the rate of temperature rise required by ASTM D92 for the firepoint test.

10. SAFETY MARKINGS

10.1 Safety markings shall conform to the regulations of the appropriate authorities in the State concerned. If the material to be supplied is classified as dangerous goods as defined in Australian Code for the Transport of Dangerous Goods by Road and Rail, International Air Transport Association (IATA) or International Maritime Dangerous Goods Code (IMDG), the package and markings shall also be in accordance with that document.

ANNEX A

DEFENCE PACKAGING COMMITTEE

TERMS OF REFERENCE

Document Number:
Issue: 1.0
Dated 20 Apr 05

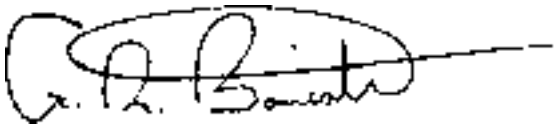
DEFENCE PACKAGING COMMITTEE (DPC)

TERMS OF REFERENCE

HEADQUARTERS JOINT LOGISTICS COMMAND **Document Number:**
Issue: 1.0

AUTHORISATION

The Terms of Reference for the Defence Packaging Committee are enclosed and authorised for use with effect from 20 Apr 05.



G.R. BANISTER
Brigadier
Chief of Staff Joint Logistics Command

14 April 2005

HEADQUARTERS JOINT LOGISTICS COMMAND **Document Number:**
Issue: 1.0

REVISION RECORD

Amendment Details	Date Incorporated	Entered by (signature)

Table of Contents

GLOSSARY

Term	Acronym	Definition

HEADQUARTERS JOINT LOGISTICS COMMAND **Document Number:**

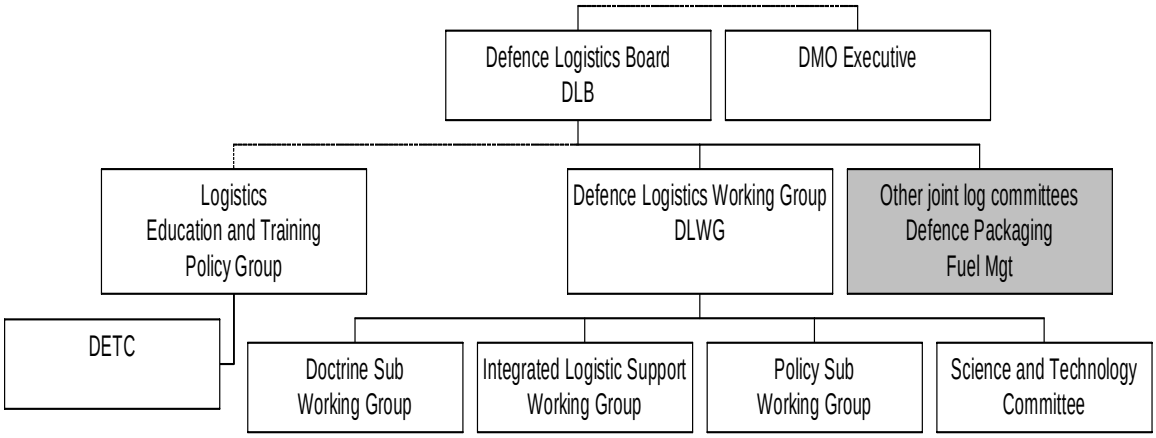
Issue: 1.0

TERMS OF REFERENCE

BACKGROUND

1. Packaging is an important Defence requirement that needs to be sponsored and supported. A committee comprising Service and stakeholder representation is required to manage current and future Defence packaging needs. The Australian Defence Organisation Packaging Committee (renamed the Defence Packaging Committee – DPC) sponsorship responsibilities were transferred from LEA to JLC in 2003 to give it a Joint focus. A recent review concluded that the Committee required a strategic focus and changes to its scope, including establishing the DPC within the hierarchy of senior logistic committees. Additional concerns were that the current scope specifically excludes aspects of packaging relating to a large quantity and range of Defence materiel, and that membership is no longer representative of the new Defence structure.

2. DI(G) LOG *Defence Logistics Governance* Policy Directive 3 dictates the hierarchy of joint logistics working groups/committees, subordinate to the Defence Logistics Board, as the authoritative Joint logistics executive forum. The hierarchical relationship is graphically showed below.



SCOPE

3. The review recommended the future DPC scope as:

- The DPC will assess, determine and maintain the policy and strategic direction for all Defence packaging matters, unless there are extenuating reasons for exclusion. It will be responsible for providing packaging advice on the complete range of Defence Materiel.

- The DPC will develop formulate and maintain policy to ensure future overseas deployment of materiel conforms to AQIS requirements. For materiel to be deployed overseas, the DPC will ensure that Defence policy addresses quarantine issues to facilitate the return of materiel into Australia.

- The DPC will include representation from key stakeholders within Defence. This may include organisations like the Defence Science & Technology Organisation (DSTO) to inform and advise on technological developments in packaging materials and application.

- The DPC will be responsible to provide advice on all aspects of packaging related environmental management matters.

- The DPC will take an active role in ensuring Defence compliance with applicable Commonwealth and State legislation relating to dangerous and hazardous goods packaging requirements, and international agencies such as IATA and Inter-Government Maritime Consultative Organisation.

FUNCTIONS

4. The DPC's remit is to:

- Assess, determine, maintain and evaluate the policy and strategic direction of all packaging requirements in the ADO.

- Ensure that packaging policy complies with State and Commonwealth legislation, particularly in relation to environmental and quarantine issues, transport, storage, distribution of dangerous and hazardous goods, and international agencies such as IATA and the Inter-Government Maritime Consultative Organisation. This includes the provisions for disposal of packaging and the choice of materials with minimum environmental/intelligence impact.

- Provide advice to ensure that packaging matters are properly addressed in all acquisition and through life support projects.

- Ensure that standardisation and interoperability issues are considered in packaging policy.

- Ensure the packaging performance is consistent with MILSPEC requirements.

- Ensure that costs associated with packaging and its efficient use are minimised, whilst not detracting from quality or performance.

- Provide advice to respective training organisations to ensure the development and availability of training programs for the packaging user community by interfacing with training authorities.

MEMBERSHIP

5. Core membership of the DPC will comprise:

- Director of Warehousing and Distribution (DWD), Joint Logistics Command (JLC)(Chair)
- Manoeuvre Systems Programme (MSP), Land Engineering Agency (LEA) (Army)

- Director of Planning – Logistics – Air Force (DP LOG AF)
- Director of Logistics – Army (DLOG-A)
- Director of Naval Professional Requirements (DNPR) (Navy)
- Defence Materiel Organisation (Invited Member)
- Chief Engineer, DWD, JLC
- Deputy Director Strategic Logistics Policy (DDSLPOL2), Strategic Logistics Branch (SLB)
- Technical Officer Packaging, LEA (Subject Matter Expert)
- SO1 Hazardous Materiel (HAZMAT), JLC
- Defence Science and Technology Organisation (DSTO) (invited member)
- Corporate Support and Infrastructure Group (CSIG) (invited member)
- Headquarters Joint Operations Command (HQ JOC) (invited member)
- Australian Quarantine Inspection Service (AQIS) (invited member)
- Department of Environment and Heritage (invited member)
- Army Standardisation Coord, LEA (Secretary)

MEETING ADMINISTRATION

6. DWD is responsible for overall administration of DPC meetings.

AGENDA

7. The standing agenda for the DPC meetings will be:

Welcome (to include introductions & apologies)
Amendments to minutes of previous meeting
Actions arising from previous meeting
Outcomes of the Defence Logistics Board and actions for DPC attention
Preparations for the next DLB
Next Meeting Focus
Other Business
Concluding Remarks

MINUTES

8. A table of actions is to be prepared on completion of each meeting and distributed by the Secretary with the minutes. This table is to be updated on completion of each meeting and kept as an auditable record. Minutes are to be completed and circulated within ten working days of the DPC meeting.

MEETING FREQUENCY

14. The DPC will convene quarterly or more frequently if the group work program dictates.

Meeting Location

15. The DPC will meet in either Russell Offices, Canberra or Joint Logistics Command, Melbourne.

GLOSSARY OF PACKAGING TERMS

11. This Standard comprises of a most comprehensive coverage of the definitions of many packaging terms commonly used in both Defence and Industry.

TERM	DEFINITION
Absorbent packaging	A material included within a package to soak up liquids resulting from leakage or liquidation of contents.
Acceleration	The rate of change of velocity of a body with respect to time measured in centimetres/sec/sec. The symbol 'g' represents the acceleration due to gravity. The internationally adopted value is 9.80665 m/s^2
Adhesion	The forces exerted across the surface of contact between two materials, which resist their separation. **Mechanical Adhesion** - Adhesion between surfaces whereby the adhesive holds the parts together by interlocking action and physical penetration. **Chemical Adhesion** - Adhesion between surfaces which are held together by valency forces (chemical bond).
Adhesive	(a). Any material used to provide adhesion. A general term including cement, glue, mucilage, paste, thermoplastic, adhesive etc. The term adhesive may be modified by adjectives which describe: 1. Its physical state, e.g.: liquid adhesive, tape adhesive; 2. Its chemical type, e.g. silicone adhesive, resin adhesive, dextrin adhesive; 3. The materials bonded together, e.g.: paper adhesive, can-label adhesive; or 4. The condition of use e.g.: hot-setting adhesive, thermoplastic adhesive, label pick-up adhesive or gum. (b). Adhesives are described according to origin or function as follows: 1. **Animal** - Adhesive derived from animal sources, such as animal glue (from bones and hides). 2. **Aqueous** - An adhesive in which water is the vehicle or solvent. 3. **Casein** - A protein base aqueous adhesive manufactured mainly from casein derived from milk. 4. **Cold-Setting** - An adhesive which sets at temperature below 30°C, generally at room temperature

TERM	DEFINITION
Adhesive (Cont'd)	5. **Hot-Melt -** Material composed of a combination of resins and/or waxes, which must be liquefied by heat to produce adhesive. Generally used in the range of 65° to 240°C. 6. **Hot-Setting -** An adhesive which requires a temperature at or above 100°C for setting, generally after the addition of a curing agent or catalyst. 7. **Lacquer -** An adhesive, which usually consists of resins dissolved in organic solvents. 8. **Latex -** An adhesive made from rubber base materials that are in emulsion form. 9. **Moisture-proof -** Generally used to describe an adhesive that forms a barrier to moisture or water when applied in a continuous film. 10. **Moisture Resisting -** An adhesive which forms a bond that retains its strength at high humidities or in contact with the water. 11. **Non-Curl -** An adhesive which provides a bond between various papers and boards and, at the same time, provides an absolute minimum of curling or distortion to the combined sheets. 12. **Non-Tarnish -** An adhesive used for the manufacture of anti-tarnish packages and chests that are made specifically for the silverware and jewellery industries. Any adhesive used in such work must remain within strict tolerances with regard to sulphur and salts, since these components will tend to tarnish certain metals, especially silver. 13. **Protein –** An adhesive material composed mainly of proteins including the animal proteins, casein, soy beans, etc. 14. **Remoistenable -** Adhesive usually activated by water or by organic solvent; for example - the adhesive on an envelope or gummed tape. 15. **Resin Base -** An adhesive material, the solids content of which are mainly composed either of natural resin or of synthetic products having the qualities of natural resins. 16. **Resin Emulsion -** A term commonly applied to a polyvinyl acetate dispersion adhesive. This type of adhesive is widely used for bonding dissimilar materials. 17. **Rubber Base -** An adhesive material, which contains natural rubber or synthetic rubber as one of the components.

TERM	DEFINITION
Adhesive (Cont'd)	18. **Starch –** The chief reserve carbohydrate of plants such as sago, wheat, corn, potatoes and tapioca used as a raw material. These starches are also used for sizing paper and cloth board. 19. **Thermo-plastic -** An adhesive capable of being activated or reactivated repeatedly by heat; made of thermoplastic resins such as polyvinyl acetate, polyolefins, cellulosics, etc. 20. **Thermo-setting -** An adhesive which hardens when heated and which does not again re-soften when reheated. 21. **Vegetable -** An adhesive material derived from vegetable sources such as flours, starches, dextrin's and natural gums. Rubber base adhesives and wood resin are also of vegetable origin but are not generally considered as vegetable adhesives (See Adhesive, Starch). 22. **Waterproof -** An adhesive which, when completely set, is insoluble in water and is not physically affected by water or moisture at any time. Many water-resistant adhesives are incorrectly termed waterproof adhesives (see Adhesive, Water-resistant). 23. **Water-Resistant -** An adhesive that maintains acceptable quality of bond after immersion in water for limited periods of time generally specified by the purchaser (see Adhesive, Water-proof).
Alkali	A substance having a pH value higher than 7, which turns litmus paper, blue and which may be corrosive.
American Standard Code for Information Interchange (ASCII)	A standard code that has seven channels and a Standard eighth channel for parity. Developed to simplify the interconnection of computers, communication circuits, and digital output equipment. (ASCII)
Anchoring	(a) The securing of an item by any means, eg of bolts, tie-rods, tie-down timbers, steel strapping, and the like, to prevent movement. (b) The securing of a surface coating to a base film, eg. coatings, which are resistant to water, are referred to as 'anchored' coatings; they are also called key coatings.
Antistatic	Term used to describe materials or processes that inhibit, or diminish the build-up of static electricity and thus reduce hazards
Antistatic Material	An electrostatic protective material having a surface resistivity greater than 10^9 but not greater than 10^{14} ohms per square.
Assembly	An item forming a portion of an equipment, which can be replaced as an entity and which normally incorporates replacement of parts.

TERM	DEFINITION
Bag	A performed container of tubular construction made of flexible material, generally enclosed on all sides except one, which forms an opening that may not be sealed after filling.
Bale	Shaped unit of compressed articles or materials, bound with cord, strapping, or metal ties under tension.
Band	Generally, any relatively narrow strip of paper, cloth, film, metal or other materials encircling an object or package.
Bar-code	An array of rectangular marks and spaces in a predetermined pattern representing coded elements of data that can automatically be read and interpreted by automatic bar code reading devices.
Bar width	In bar code, the perpendicular distance across a bar measured from one edge to the opposite edge.
Barrel	A cylindrical container, metal or wood, with sides that bulge outwards and flat ends or heads of equal diameter. Includes kegs.
Barrier	Any material providing a physical shield against the ingress or egress of elements which cause loss or deterioration.
Barrier Material	A material that retards transmission or material passage of solids, liquids, gases, or radiated energy
Barrier, grease-resistant	A material that prevents or retards the transmission of grease or oils.
Barrier, water resistant	A material that prevents or retards the vapour-transmission of water vapour.
Base	(a) The bottom of a container. (b) The principle component of a multi-layered processed material to which the remaining components are applied. (c) A framework to which an article is fastened for shipment without further protection, or for positioning in a shipping container.
Batch	A quantity of some commodity from which a sample is to be inspected to determine compliance with the acceptability criteria. (It may differ from a quantity of some commodity designated as a batch for other purposes, eg. for shipment.) Each batch is assumed, as far as is practicable, to consist of material or items of a single type, grade, class, size and composition, and to have been manufactured under essentially the same conditions at essentially the same time.
Batten	Strip of timber added to a timber case or crate to strengthen it, usually fixed at right angles to the grain of the reinforced boards.

TERM	DEFINITION
Bead	(a) A small rounded projection above the adjacent surface of a glass container. (b) A convex or concave rib. (c) The lower annular ring formation commonly found on containers with screw type finishes.
Bearer	A member separating the top and bottom decks of a pallet and providing space for the entry of tines (forks). Bearers may consist of blocks or continuous beams.
Bending Board	Any paperboard that will endure a single fold, by manual test, through 180° without breaking or separating of the plies. A board is considered a 'Bender' if, when properly scored and folded, no break in the outer fibres is found.
Bin	A bulk-carrying receptacle which may or may not be lidded. A container used for storing small or loose items.
Blister Packaging	A type of packaging where the item is secured between a preformed (usually transparent plastic) dome or 'bubble' and a paperboard surface or 'carrier'. Attachment may be stapling, heat-sealing, gluing, etc.
Blocking	Devices used to hold articles for sections of loads in position (whether or not of compressible material).
Board	(a) A strip of sawn timber, usually about 75 mm wide and 10 up to 40 mm thick. (b) An abbreviated, non-preferred term for paperboard or fibreboard. A generic term for fibreboard and paperboard.
Box	Rigid, closed container usually rectangular/prismatic in shape.
Bond	The attachment at the interface between an adherent and an adhesive. To join materials by means of an adhesive.
Bottle	A container with a narrow neck, usually for holding liquids.
Bottoming	The process of covering or labelling the base or top of a box with paper or other material, which is, glued all over.
Bracing	Materials or devices used as strengthening and/or locating constraints to hold articles and prevent shifting.
Breaking Strength	The ability of a material to resist rupture by tension. A measure of the strength of paper, fabrics, films and other materials.

TERM	DEFINITION
Bubble Wrap	A cushioning material consisting of a packaging flexible plastic film having uniformly-material spaced bubbles integrally moulded therein.
Bulge	Expansion of the outside dimensions of a package. Compression Bulge caused by strapping or by the weight of bulge superimposed packages. Filling Bulge occurring during the filling or bulge packing process. Settling Bulge caused by vibration during transit, or bulge by subsidence of the product during long-term storage.
Bulk	(a) That quantity of identical items which are packed individually, or in primary packaged quantities into one transport package for ease of storage, handling or transportation. (b) A method of containing loose or granular packaging materials for shipping or storage. (c) A method of assembling many items into a container for shipment or storage.
Bulk trade	That used for packaging bulk commercial pack commodities.
Bundle	Two or more articles held together by whatever means (banding, strapping, or tying) so as to form a shipping unit.
Bung	A large insert into the filling opening of a barrel, drum or cask.
Bursting Strength	A measure of the ability of a sheet to resist rupture when pressure is applied at right angles to its surface by a testing machine under specified conditions.
Can	A container, usually made of metal or paperboard or a combination of both, comprising body and one or two ends.
Cap	A removable cover which fits over a container neck or opening rather than into it.
Capacity	The total internal volume of a container.
Capping	The process of covering the top of the lid or bottom of a box externally with paper and turning the paper partially over the sides.
Capsule	(a) A small cylindrical container with rounded ends. (b) A closure component, which is secondary as in foil or plastics, cover over a cork stopper.
Carboy	A bottle-shaped glass container of large capacity and used for the transport of chemicals.

TERM	DEFINITION
Carton	A folding, collapsible container generally made from fibreboard or paperboard.
Case	A rigid heavyweight timber box whose panels are totally closed, as distinct from those of a crate.
Case liner	A lining, usually paper, or treated materials placed inside a shipping container for the purpose of preventing sifting, or entrance of moisture, dust, or dirt.
Case number	A number marked on the outside of a container by the consigner for identification purposes.
Cask	A barrel-like container.
Cell	A small compartment usually closed on four sides with open ends, and serving to block, brace or cushion an item or to separate items within the container (such as a cell formed by a set of paperboard partitions.) May be formed of paperboard, solid fibreboard, corrugated fibreboard or wood.
Cellophane	Transparent film made of regenerated cellulose. Cellophane is inherently greaseproof and by coating may be made moisture-proof and heat sealable.
Certificate	A statement printed on a corrugated or solid box maker's fibreboard box, testifying that all applicable construction requirements of the carriers have been observed and identifying and locating the box maker.
Certification	The act of confirming that a completed package, marking inclusive, meets the requirements of performance oriented packaging.
Character	In bar code, letters, digits, or other special form used as part of the organisation, control and representation of data.
Chime	The outer edge of a cylindrical container including the seams.
Classification	Electrical and electronic parts, assemblies of electrostatic and equipment that are sensitive to ESD discharge voltages of 15000 volts or less sensitive items. (a) Class 1 - sensitive to voltages of 1000 volts or less. (b) Class 2 - sensitive to voltages greater than 1000 volts but less than or equal to 4000 volts. (c) Class 3 - sensitive to voltages greater than 1000 volts but less than or equal to 15000 volts.
Cleat	A strip of timber, usually morticed and tenoned, used to form the framework of a box and to which the sides, top and bottom are stapled.

TERM	DEFINITION
Climatic	Damage caused by the effects of climate, eg. damage temperature, humidity, rain, wind or water immersion, solar radiation; sand dust or salt spray, corrosive atmospheres. May be combined with mechanical damage.
Clinch	After nailing, to bend or turn over the protruding points so that nails will hold fast.
Closure	A means of closing a container to retain the contents.
Coating	A surface treatment by application of material, to obtain desired qualities, eg. mineral-based (clay) coating of paper, enamelling for decorative purposes, lacquering of cans or collapsible tubes.
Cocoon	To employ strippable, usually plastic, sometimes multi-layered films to encapsulate an item.
Code	To assign numbers, letters, words, or symbols as identifying marks to containers, packaged materials, or articles to convey information concerning the qualities of the container or its contents, date, place of manufacture, or other significant identification.
Code density	In bar code, number of characters per unit of length; expressed in character (CPCM).
Coding	The practice of indelibly marking by embossing (emboss) a number of other marking on the end or body of a can for identification purposes.
Co-extrusion	Extruding two or more layers of thermoplastic materials to form a combined film.
Cohesion	The force of attraction between the molecules of a solid or liquid. May vary with temperature.
Cold-flow	The increase in deformation of a stressed material over time.
Cold pressing	A bonding operation in which an assembly is subjected to pressure without the application of external heat.
Cold-seal	A package (usually a pouch) formed by enclosing an item within a wrap of cohesive material (usually low-density polyethylene or paper) and applying pressure alone to the sealing surfaces by means of opposing rollers (of a machine) or by manually pinching the two surfaces together.
Cold Resistance	The ability to withstand the effects of below freezing temperature. Cold resistance properties include resistance to cold cracking and low temperature flexibility.
Collar	A scored piece of fibreboard fitted against the inside of the vertical walls of the box to provide additional stacking strength or cushioning.

TERM	DEFINITION
Combustion	(a) Destruction by fire. (b) Chemical union of oxygen with another substance accompanied by the evolution of light and rapid production of heat.
Commercial Packaging	The methods and materials employed by the supplier to satisfy the requirements of that supplier's distribution system.
Commercial Trade Pack	The package normally used by the manufacturer for commercial deliveries to a destination within Australia that would involve movement by any medium of transport. The standard of packaging is to ensure that the condition of the supply on delivery to the nominated receiving authority is identical to the condition in which it was packed by the supplier. The supplier is to provide complete identification markings in accordance with the terms of contract.
Commodity Mark	This is a symbol, which broadly classifies the contents of a package.
Compact Fibreboard	Composite fibreboard weighing at least 1000 grams per square metre and with a ply of heavy paper (Kraft or similar) suitable for the manufacture of packaging cases.
Compartment	A subdivision formed by partitioning a container.
Compatibility	A broad term meaning that the various components can be used together without undesirable physical effects or chemical reactions.
Competent Authority	A national agency responsible under its national law for the control or regulation of a particular aspect of the transportation of hazardous materials.
Composite Packaging (ADG Code)	A composite packaging (plastic material). Consists of a plastics receptacle and an approved outer protection (eg. sheet metal, fibreboard, plywood) constructed so that the receptacle and outer protection form an integral packaging for transport purposes. Once assembled, it remains an integrated single unit; it is filled, stored, shipped and emptied as such.
Compression	A test for measuring resistance to external test compressive forces.
Compression Set	The extent to which cushioning material fails to recover its original form on the removal of a load which has been imposed for a given period.
Condensation	Reduction of vapour to liquid moisture by depression in temperature or increase in pressure.
Conditioning	A measure to stabilise items, packaging materials, containers, and packages in a defined atmosphere.
Conductive Material	An electrostatic protective material having a surface resistance of 10 ohms per square maximum.

TERM	DEFINITION
Conformability	The ability of a packaging material to bend around the sharp contours or projections without tearing or fracturing.
Consolidated Package	Package containing a fixed number of standard packages of one and the same item packed together to facilitate handling operations.
Contact Preservative	A preservative applied directly to the surface preservative of the item being preserved.
Container	(a) Any box or receptacle, which holds, restrains, or encloses any article(s) or commodity(ies) to be stored or transported. (b) A shipping method in which material is packaged together in one container. (c) The use of transport containers to utilise cargo for transportation supply and storage.
Containerisation	(a) A shipping method in which material is packaged together in one container. (b) The use of transport containers to utilise cargo for transportation, supply and storage.
Controlled Humidity	Regulated atmospheric water vapour content within specific limits.
Contour Packaging	Packaging an irregular shaped object in a flexible, clinging wrap that will closely fit all parts.
Core	This can be square or oval, as well as cylindrical, it may be the body of a reel or it can be just a tube, without heads, used in a variety of lengths and diameters for winding many different materials such as fibres, yarns, fabrics, film, foil, paper, etc.
Cork	A stopper, plug or bung manufactured from the outer bark of the cork oak tree.
Corrosion	The chemical reaction between a material, usually a metal(s), and its environment that produces a deterioration of the material and its properties.
Corrosion Preventive	(a) An additive which prevents corrosion by inhibitor surface modification. Generally effective in relatively small amounts and for use is normally dispersed in a liquid for application to a solid medium. (b) Substance, which, by intimate contact with metal surfaces, protects them from corrosion, by acting as an impervious barrier by modification of the metal surface, eg. by absorption or by superficial oxide formation.

TERM	DEFINITION
Corrosion Preventive (Cont'd)	(c) Any agent, such as oil, plastic, paint, wrap or other surface treatment of metals, the primary function of which is to prevent, inhibit or deter corrosion. May exclude atmosphere by means of a continuous film, or may direct corrosion to another sacrificed element. (d) A liquid used to remove fresh fingerprint residues and suppress corrosion that has developed as a result of fingerprint residue. It may serve as a temporary, easily removable, corrosion preventative.
Corrosive Substance	A substance which on contact will cause severe damage to living tissue, materials or packaged goods.
Corrugated Fibreboard	The structure formed by adhering one or more flat-facing fibre linerboards to one or more corrugated fibre mediums normal designations are: (a) **Single face** - The structure formed by adhering one medium to one linerboard. (b) **Single wall** - The structure formed by sandwiching one medium between two linerboards. (c) **Double wall** - The structure formed by sandwiching two intermediate mediums between three linerboards. (d) **Triple wall** - The structure formed by sandwiching three intermediate mediums between four linerboards.
Corrugating Medium	Paper used to form the corrugated layer in corrugated fibreboard.
Corrugator	A machine for combining webs of liners and corrugated (fluting) medium into corrugated fibreboard.
Cover	(a) The top end or lid of a container, which usually closes the filling or dispensing opening. (b) A closure for an open-end drum other than a bung. It may be of the following types, lid with bolted ring, friction or lug cover.
Crate	A rigid shipping container of framed construction joined together with nails, bolts or other means of fastening. The framework may not be enclosed with sheathing. It may be demountable or non-demountable.
Cracking	(a) **Environmental stress cracking** - The formation of cracks or crazing caused by exposure of articles to an active environment. (b) **Stress Cracking** - Surface or internal cracks in plastics, caused by stress within the material.

TERM	DEFINITION
Crease	(a) A line or mark made by folding any pliable material. (b) To form a crease in a sheet of material, usually for the purpose of providing a bending line.
Creasing	The mechanical identification of the material, to give the line of fold.
Creep	(a) A slow dimensional change of a material in the direction of stress when under load. (b) A dimensional change of a product, due to elastic recovery or to change of ambient conditions.
Creping	The process of producing minute corrugations or folds in sheet material so that the sheet can be stretched to a considerable extent without tearing.
Cross Direction	The direction at right angle to the machine direction.
Crossover	The junction of a side seam and a double seam of a metal or composite can.
Crown	(a) The exposed part of the staple when clinched. (b) The length of the exposed part of the staple length when clinched.
Cube	The volume of space occupied by the unit under consideration computed by multiplying overall exterior length, width, and height.
Curing	(a) To impart required physical characteristics to a material by the application of heat, pressure, chemical agents, or any combination of these factors for a given time. (b) The process of changing the physical properties of an adhesive by chemical reaction (eg. condensation, polymerisation, vulcanisation) to attain the required strength. (c) The process of hardening a thermosetting moulding by heat treatment. (d) The removal of solvent. (e) Self-curing, Hardening of curing without the application of heat.
Cushion Strip	A material or device, placed in a position inside a container to absorb the forces of impact, usually made of a cushioning or compressible material.
Cushioning	(a) Protection of an item from physical damage by using materials designed to absorb shocks and vibrations by compression. (b) A material used to isolate or reduce the material effect on a product of externally applied shock or vibration force, or both.

TERM	DEFINITION
Dangerous Goods	Articles or substances which are capable of posing a significant risk to health, safety, or property, and which are subject to special regulations for its storage and transport.
Date Packed	That date on which the product was packed in the unit pack, regardless of the date of exterior packing, shipping, or additional processing.
Dead-load	A static load.
Dead-stretch	The net increase in length of tape after the force, which stretched the tape, has been removed and the tape is allowed to recover.
Deck loaded vehicles cargo	Vehicles and their cargo stowed on the open deck of ships where they are directly exposed to elements such as salt spray, rain and snow.
Defect	Any fault in design or deviation of a dimension, finish or other functional or qualitative characteristic of an article or unit from specification or drawing requirement or from recognised manufacturing standards. **Defect classification** Defects in order of importance are as follows: **A - CRITICAL** One which in handling, storage, or use could cause loss of life or serious bodily injury; **B - SPECIAL** One which makes the store (item) useless for the purpose for which it was designed; **C - MAJOR** Other than critical, one that can result in failure, or materially reduce the useability of the product for its intended purpose; **D - MINOR** One caused by departure from good manufacturing practice and though having no ill-effect on functioning is nevertheless undesirable. **E - INCIDENTAL** One caused by departure from good manufacturing practices and though having no ill-effect on functioning, is nevertheless undesirable.
Defence Stock Number	A 13 digit system of numerals allocated to each item in the Defence Inventory.

TERM	DEFINITION
Deformation	Any distortion of the form or outline on an article.
Dehumidify	To dry out or absorb moisture by means of baking, ventilation or by the use of a desiccant.
Dehydrating agent	A material that has a high affinity for moisture and absorbs it from the surrounding air; a desiccant. Example: activated silica gel.
Delamination	The separation of two or more components of a laminate due to bond failure.
Deliquescent	The process whereby solids take up moisture from the air, gradually forming a liquid.
Density	(a) Mass per unit of volume. (b) **Relative density** - The ratio of the mass of a given volume of a substance to the mass of an equal volume of water at a temperature of 4°C.
Desiccant	A hygroscopic substance used to reduce and maintain a low relative humidity in a package or container.
Deterioration	Implies impairment of quality, value of usefulness of an item caused by erosion, oxidation, corrosion or combustion.
Dew point	The temperature at which the atmosphere is saturated with water vapour.
Die-cut	(a) To punch out with a sharp tool. (b) A method of preparation in which a part or container has been cut, slotted, and/or scored by custom-made dies.
Dimensions	The measurement of length, width (or diameter), and depth of containers, expressed in that order, it should be stated as “inside” or “outside”.
Dimensional stability	The practical absence of dimensional change under certain conditions, such as time, humidity, pressure, heat, etc. The degree to which dimensional changes occur in a particular material under controlled conditions is measured in terms of its Co-efficient of expansion and contraction.
Dipcoat	A coating obtained by dipping an object into a bath of liquid, or molten solid, to obtain an overall coating.
Displacement	The volume occupied by a container, calculated from its outside dimensions.
Distribution	The management process and physical function associated with the issue and transportation of supplies to the user.

TERM	DEFINITION
Distributor	Anyone authorised by the manufacturer to rebrand and distribute the manufacturer's product under the distributor's own brand designation.
Divider	A device made of various materials that separates the space within a container into two or more spaces, cells, compartments, or layers.
Drainage Holes	Spaces or holes provided in or near the bottom of a closed container to allow water to condensate to escape.
Drier	(a) A material which combines physically or chemically with water vapour. Also a cartridge or container filled with a drier or desiccant. (b) A material which, when added to paint, lacquer, ink and the like, accelerates the rate of drying or decreases the setting time.
Drop test	A test for measuring the durability of an article or the protection, or the retention properties of a container, or all three by subjecting the packaged product to a free fall from predetermined heights onto a surface with prescribed characteristics.
Drum	A straight-sided, normally cylindrical container having flat, convex, or embossed ends and made of metal, plywood, fibreboard, or plastics.
Drying room	Heated space for conditioning of packages or products requiring drying.
Drying time	The time required for a substance, such as adhesive, ink, paint, etc, which has been applied in viscous or fluid form to reach an equilibrium mixture or solvent content with respect to the surrounding medium, either the atmosphere or the base stock. The time is required for a substance that has been applied in fluid or viscous form to dry sufficiently to be useable in its intended function.
Dunnage	Any material such as paper, paperboard, metal, plastics or timber in many forms, used during storage or transport, to secure or protect goods from damage.
Dynamic dehumidification	Control of relative humidity factor by mechanical means, which induces a flow of air over condensing areas.
Edge member	(a) Frame members, which form the edges of a case or crate. (b) The foundation upon which the rest of the container is built.
Edge protector	A piece of right-angle section of metal, plastic, fibreboard or paperboard placed over the edge of boxes, crates, bundles and containers in general, to distribute the pressure from metal bands or ties, and to prevent cutting.

TERM	DEFINITION
Efflorescence	A specific form of spontaneous desiccation. The property of a crystalline substance to become anhydrous when exposed to air and to crumble to a powder. Opposite of deliquescence.
Elasticity	The property of a substance, which enables it, to return to its original shape and size after removal of a deforming force.
Elastomer	A substance having rubber-like or stretching qualities.
Electro-cleaning	Method of cleaning parts by immersion in an aqueous chemical bath and passage of electric current through bath and parts to be cleaned where the parts are the anodes.
Electrolyte	A conducting substance usually a solution in which electric current flows by virtue of chemical changes or decomposition.
Electrostatic discharge (ESD)	The transfer of electrostatic charge between bodies at different electrostatic potential.
Electrostatic discharge (ESD) protective	(a) Preventing the generation of static electricity dissipating electrostatic charges over its surface or volume. (b) Providing shielding from ESD or electrostatic fields.
Electrostatic Sensitive Devices (ESSD)	Electrical and electronic items susceptible to damage from electrostatic discharge/static electricity brought by physical or near physical contact with an electrostatically charged body.
Electrostatic field	The region surrounding an electrical charged object in which another electrical charge will experience a force.
Electrostatic protective	Materials classified in accordance with their surface resistivity (or alternate conductivity) as conductive, static dissipative or anti-static, being capable of one or more of the following: (a) Limiting the generation of static electricity. (b) Rapidly, dissipating electrostatic charges over its surface or volume. (c) Providing shielding from electrostatic spark discharge or electrostatic fields.
End grain nailing	Wood members so nailed together that the point of the nail follows the grain of the wood so that the shank is parallel to the grain in that member, holding the point of the nail.
Equilibrium humidity	Relative humidity of an atmosphere at a given temperature at which absorption will not occur in a hygroscopic material of a given moisture content.

TERM	DEFINITION
Equilibrium moisture content	The moisture content of a material at which the material neither gains moisture from nor loses moisture to the surrounding atmosphere.
Exceedance rate	A percentage of a specified number of identical packages may, in transit, be dropped from a height in excess of that for which they were designed. The exceedance rate is quoted for the gross mass of package.
Expiration date	A date beyond which shelf-life items are to be suspended from use, or tested and re-lifed.
Export trade package	That used for the export of commercial commodities.
Exterior pack	Package or container containing a single item or a number of unit packs or intermediate packs ready for shipment and storage.
Extrusion	A process of shaping material by forcing it, with the application of heat and pressure through an aperture of the desired shape, eg. the process of forming a tube from a metal slug by forcing it backward between a die and a punch, or producing a film.
Face	Any one of the plane surfaces of a container such as a side, end, bottom.
Facing	A linerboard used as the flat members of corrugated fibreboard.
Fast pack container	A standard size, reusable container with foam cushion inserts.
Feathering	(a) Corrugated effect on both roll edges caused by random lateral movement of the web, the core or both. (b) A condition encountered in the spraying of coatings, which utilise volatile solvents whereby the rapid evaporation of the solvent from the spray causes premature drying, and the formation of webs.
Felt	A cloth made of matted fibres of wool, vegetable or other materials. Used in various thicknesses as cushioning material where positive cushioning performance is needed.
Fibre	(a) A very narrow, elongated thick-walled cell, tapering to a sharp point at each end, originating from plants such as cotton, jute or trees. (b) Substance consisting of fibres, that can be spun, woven or felted. (c) Some types of fibre from mineral, animal or synthetic origin which are used in special types of paper or textiles.
Fibre composition	The fibrous constituent of paper and their various propositions by mass in the paper. The latter is usually expressed as a percentage of the total fibrous material.

TERM	DEFINITION
Fibre tear	An indicator of the effectiveness of an adhesive bond showing rupture of the surface of the (paper, fibreboard or timber) rather than failure of the adhesive.
Fibreboard	A board composed of paper or paperboard or both components bonded by an adhesive.
Fibreboard Corrugated	see Corrugated fibreboard.
Fibreboard Multi-wall	A non-specific term for corrugated fibreboard of two or more walls.
Fibreboard Solid	A board composed of two or more layers of flat paper or paperboard laminated together with an adhesive.
Fibreboard Wax-coated	Fibreboard which has been coated on one or both sides with a paraffin wax blend.
Fibreboard Wax impregnated	Fibreboard which has been partially saturated with paraffin blend.
Filling	(a) A process of inserting the required product into a package. (b) The product in the package. (c) Dunnage.
Film	A very thin, flexible, non-fibrous, non-metallic material.
Film Coextruded	Film formed by combining two or more layers of extruded thermoplastic materials.
Film Heat-sealing	A film which is self-joining upon the application of heat and pressure and without the necessity for adhesives.
Film Moisture resistant	A film that offers a high degree of resistance resistant to the passage of water vapour.
Film Non-fogging	Film which does not become cloudy from the effects of moisture or condensation.
Film Pressure-sensitive	A film coated on one side with a pressure-sensitive adhesive.
Film Shrink	The film used for shrink-wrapping.
Film Stretch	A film used for stretch wrapping.
Finish	(a) The degree of smoothness of the surface of paper or board. The term is also used to describe the production of this degree of smoothness during manufacture. (b) The top part of a bottle or jar which accommodates the closure.

TERM	DEFINITION
Finish Critical	Items meeting one or more of the following criteria are considered to possess a critical finish: (a) Items which are of such a nature that any degree of deterioration (in the form of rust, stain, scale, mould, fungi, bacteria and the like) caused by oxygen, moisture, sunlight, living organisms, temperature, time and other contaminants, will result in premature failure or mal-function of the item, or equipment in which the item is related. (b) Items of such a nature that a slight degree of physical action on the items or any integral surfaces thereof, renders them unfit for use. This includes items having a surface finish of 1.6 µm root mean square (r.m.s.) or less and require a high degree of cleanliness and freedom from contamination as well as those requiring special protection against shock, vibration, abrasion and distortion damage.
Fitments	Interior packing units, eg. layer-pads, partitions, inserts, fillings and the like, used to provide additional protection or support for an article in a container.
Fire retardant	Material having or providing comparatively low flammability or flame-spread properties.
Flammable Liquid	A liquid having a flashpoint of 23°C and up to and including 61°C.
Flange	(a) A projecting rim, flared end of the container body, or closure. (b) A piece of paperboard cut slightly larger than the size of the box, or lid, glued to the bottom of a box or top of a lid to form a protruding edge. (c) A screwed closure-fitting fastened permanently into drumhead or wall through which contents are filled or dispensed. The matching closure-fitting is the plug. (d) 1. - To flare the top of a can body out to prepare it for double seaming an end. 2. - The flaring projection about the end of a can body. 3. - The outermost projection of an end, cover or cap.
Flaps	The closing members of a carton or fibreboard box.

TERM	DEFINITION
Flashpoint	**AS 2484.1** - The lowest temperature at which, under specified conditions, a material gives off sufficient flammable gas to produce a flash on application of an ignition source. **IATA** - Is defined as the lowest temperature at which flammable vapour is given off a liquid in a test vessel in sufficient concentration to be ignited in air when exposed momentarily to a source of ignition. This does not mean the temperature at which a liquid ignites spontaneously.
Flatback	A flat uncreped tape backing which is paper tape relatively non-conformable.
Flat crush resistance	The resistance of the arch structure of corrugated fibreboard when subject to loads applied perpendicular to the surface of the board.
Flat seal	A method of heat sealing thermoplastic coated paper or thermoplastic films with a heated surface having no configuration.
Flexibility	That property of a material which will permit it to be bent or twisted without breaking (pliability). It can be related to temperature.
Flexible item	An item, which because of its assembly characteristics, material content, or disproportionate dimensional relationships, will change its shape in some manner under very moderate pressure, including pressure which is exerted by the item itself when not fully supported over a major portion of its load-bearing surface.
Flexing strength	The ability of a sheet to withstand breakage by folding. Flexing strength may be measured by a test to determine the number of folds required to cause failure. Also called flexural strength.
Flies	Paper or lace fixed inside the top of a box to cover the contents either partially or completely.
Float packing	The method of employing an inner and outer container with suitable cushioning material between the two to absorb shock and vibration.
Floating bag	A method of protective packaging in which the packaged item is secured to a wooden base and then fully enveloped in a dustproof or water vapour barrier bag.
Floorboards	Sheathing which is nailed to the skids or bearers of a pallet.
Flow coating	A process of applying a surface coating by allowing the coating material to flow over the surface and allowing the excess to drain away.

<table>
<tr><th>TERM</th><th>DEFINITION</th></tr>
<tr><td>Fluoro-carbons</td><td>Liquid or gaseous compounds used as a propellant for aerosols and for refrigerants. Also available as solid thermoplastic materials, such as Teflon (polytetra-fluro-ethylene) and KEL-F (polymono-chlorotrifluro-ethylene).</td></tr>
<tr><td>Flute</td><td>(a) Parallel channel or grove, longitudinal or helical, formed on the outside of a cylindrical moulding formed to strengthen decorate or to facilitate screwing.

(b) A single corrugation of the medium of corrugated fibreboard. Flute dimensions are specified as follows:
<table>
<tr><th>Flute type</th><th>Flutes/m</th><th>Flute height mm</th></tr>
<tr><td>A</td><td>110-120</td><td>4.0-4.8</td></tr>
<tr><td>B</td><td>150-167</td><td>2.8-3.7</td></tr>
<tr><td>C</td><td>127-140</td><td>1.8-2.5</td></tr>
<tr><td>E</td><td>295-327</td><td>1.5-1.8</td></tr>
</table></td></tr>
<tr><td>Flute direction</td><td>The direction along the flutes of corrugated fibreboard</td></tr>
<tr><td>Fluting</td><td>(a) The corrugated sheet, which separates the, liners, forming the cushioning layer in corrugated fibreboard, usually described as corrugating medium.

(b) Distortion of outer or inner cylindrical contour of a roll of tape due to internal changes in the roll.</td></tr>
<tr><td>Foam</td><td>A material in which bubbles of air or volatile solvent are dispersed.</td></tr>
<tr><td>Foam-in-place cushioning material</td><td>One formed by dispensing, usually into a box or mould, reactive chemical components that expand to envelop items packaged or occupy void areas.</td></tr>
<tr><td>Foam plastic</td><td>An expanded plastic material the structure of which may be flexible or rigid and the cells closed or interconnected. The resins are expanded by the addition of a foaming agent that generated gas on heating and thus causes the material to assume a cellular structure. Generally used as a cushioning material in packaging.</td></tr>
<tr><td>Fogging</td><td>A method of applying a spray of corrosion preventive to interior surfaces or relatively inaccessible surfaces in the form of a fog.</td></tr>
</table>

TERM	DEFINITION
Foil	Very thin metal sheet designated as: (a) Light-foil having a thickness in the range from 5 µm up to 18 µm inclusive; (b) Medium-foil having a thickness in the range from 19 µm up to 40 µm; (c) Heavy-foil having a thickness in the range from 41 µm up to 150 µm.
Foil coated	Foil which has been coated on one or both sides. Such coatings may be used to improve scuff resistance and slip, prevent corrosion, form a heat seal or provide heat resistance.
Foil laminated	Foil bonded to other materials such as paper, board and films by means of an adhesive.
Foil lubricated	Foil to which a controlled coating of wet and dry lubricant is applied during production.
Foil plain	Foil which has a controlled residual rolling oil-coating for purposes of lubrication.
Foil soft	Foil which has been annealed to achieve a degree of softness.
Foil supported	Plain, lacquered or coated foil which is attached to another material such as paper.
Foil unsupported	Foil which has not been attached to any other material but which may have a lacquer or other coating.
Folding	Forming a closure by doubling over- (a) the flattened end of a collapsible package; or (b) the flattened end of a collapsible tube usually combined with crimping.
Fortifier	A material added to an adhesive to improve the strength of a joint under specific conditions.
Fragile	A fragile item is one whose physical characteristics permit fracturing or shattering of the item when it is subjected to moderately light impact forces.
Fragile item	An item that fractures or suffers functional or physical damage when exposed to moderate or light impact stress.
Fragility	The inherent physical properties of an item that limit its ability to withstand physical stresses without damage.

TERM	DEFINITION
Fragility factor	A level of acceleration expressed in unit of standard gravity, which, if exceeded, may cause damage to the material.
Frame members	The structural components of a container which supply strength and rigidity.
Framework	The end, side, top and bottom rails, battens and girth battens and, where required, diagonal braces of a nailed wooden case or crate.
Free space	The part of the capacity of a container that is a vacuum or is occupied by matter other than the article contained in the package.
Freight container	Large, reusable internationally standardised container for the transportation of goods.
Furnish	The non-aqueous component of the mixture of materials from which paper or paperboard is made.
Fuse	To join materials which are in close contact by heating them to just below their melting or softening point.
G	Symbol for the acceleration of gravity at the earth's surface.
G-factor	The maximum deceleration expressed in units of the earth's gravitational pull, to which an item may be subjected without damage; it is termed also the G-load or impact load factor. G-factor is a measure of fragility and may be expressed in the form of a ratio: $\frac{\text{maximum force}}{\text{weight of item}}$ G-factor may be derived from accelerometer measurements.
Gauge	An expression of thickness of certain material.
Glass	An inorganic material obtained by fusion of raw material-mainly sand, limestone and soda ash-which is homogenous and isotropic. The fused mass has been cooled down at a rapid and controlled rate, essentially without crystallisation.
Grain	The arrangement or direction of fibres in a fibrous material, such as paper or wood, or the direction or molecular orientation in a non-fibrous material.
Grain direction	The direction in which a material tends to split, due to parallel orientation of the fibres or molecules. It may apply to paper, plastics, films or metal foils.

TERM	DEFINITION
Grammage	The mass of a specified area of material determined under standard test conditions. Expressed in grams per square metre(g/m^2).
Grease-proof	(a) Capability of a material to be impervious to grease. (b) A grease-proof packaging isolates grease from the interior surface of the exterior container and secures the integrity of contact protection given by grease.
Gross mass	The combined mass of the container, packing material, and contents.
Gross unit load size	The dimensions of the rectangular space defined by the intersection on the floor by four vertical planes, which totally enclose all extremities of the unit load in an assembled condition.
Groove	A recess of predetermined profile, having a definite purpose, eg. oil grooves, seaming roll groves, curler grooves.
Gross weight	The combined weight of the container, packing material, and contents.
Gum	A term used to cover a variety of colloids of vegetable origin, which swell in water to form viscous solutions.
Hardboard	Fibreboard manufactured from ligno-cellulosic fibres by compressing and drying.
Hardener	A chemical compound used to effect the curing (hardening) of certain types of resins.
Hazardous material	A substance or material posing a risk to health, safety, and property, the packaging of which is subject to special regulations.
Headers	Transverse members of a wooden case placed at each end of a skid-type base, to hold the base together as a unit and to provide a fastening member for end panels.
Headspace	The space in a container not occupied by the product.
Heat resistance	The maximum temperature that a material will withstand and still retain at least 50 percent of its physical properties for a specified time.
Heat seal	A method of bonding mating surfaces under controlled application of heat, pressure, and dwell time.
Hermetically sealed	A receptacle or packaging is regarded as being hermetically sealed if it is constructed and closed so that it is airtight and will remain so under all normal conditions of transport.

TERM	DEFINITION
Hessian	A single wrap, single weft, plain woven jute or hemp cloth commonly used for wrappers and bag making.
Hoops	Metal straps or bands fixed on the outside of a bale while under pressure.
Hoops rolling	Heavy T-bar rings encircling the body of a drum at about one-third and two-thirds of the distance from top to bottom to facilitate rolling and to protect the body of the drum.
Human-readable interpretation	In bar code, the exact interpretation of the encoded bar code presented in a human-readable font.
Humectant	An additive capable of absorbing moisture from the air. It is useful for reducing skinning of the adhesive, extending drying time and maintaining the flexibility of the adhesive film.
Humidify	To moisten or dampen. To cause the atmosphere surrounding a product to contain moisture.
Humidity	The quantity of water vapour in air, influencing the water content level in some packaging materials. (a) **Absolute humidity** - The mass of water vapour contained in unit volume of air at stated conditions of pressure and temperature. (b) **Equilibrium humidity** - The relative humidity of an atmosphere which would neither add nor subtract moisture from a given material with a given moisture content. (c) **Relative humidity** - Existing water vapour pressure of the atmosphere expressed as a percentage of the saturated water vapour pressure at the same temperature.
Humidity indicator	A device which displays data on moisture content within a package.
Hydrocarbon	A generic term for compounds which contain only carbon and hydrogen in the molecule. They are divided into saturated and unsaturated hydrocarbons, aliphatic (paraffin or fatty) and aromatic (benzene) hydrocarbons.
Hydrogen embittlement	Embittlement (loss of ductility) caused by absorption of hydrogen into a metal, eg. During acid cleaning (pickling) or cathodic treatment.
Hydrometer	Instrument used measuring the relative density of liquids.
Hydrophilic	Having an affinity for water.
Hydrophobic	Lacking affinity for water.

TERM	DEFINITION
Hygrometer	An instrument for measuring relative humidity.
Hygroscopic	Having the ability to absorb moisture from the atmosphere.
Hysterestic	The retardation or lagging of an effect after its cause, eg. the time of recovery of a cushioning material after shock.
Identification	The application of appropriate markings to ensure that the identity of an article or commodity is clearly indicated after preservation and at each stage of packing, eg. stock numbers, item name, unit of issue and quantity.
Impact	(a) The result of a sudden change in velocity or direction. (b) collision of a body in motion against another body.
Impact recorder	A small instrument, which may be included in packages or in shipments with packages, to record shock and vibration to which the package is subjected. Ordinarily impact recorders give a measure of shock in G's.
Impact strength	Resistance of a material or product to shocks such as from dropping and hard blows.
Impregnation	(a) The partial saturation of a material with another substance, ie. the impregnation of paperboard with paraffin, resins or other protective materials. (b) The process of introducing a bonding agent to fibrous materials to increase their strength.
Incline impact test	A test for determining principally the resistance of a packaged product to damage from impacts.
Inhibitor	A substance or agent which slows or prevents chemical reactions, such as those of corrosion oxidation, adhesive deterioration, food spoilage, mould, etc, even though present only in small quantities.
Insert	Any type of material used to separate articles within a package or fill the space.
Inspection	The activity of examining products or services (including raw materials, components, intermediate assemblies and processes) to determine conformity with requirements.
Inspection authority	The authority nominated to ensure that all equipment purchased is inspected for serviceability, and satisfies applicable standards and specifications.

TERM	DEFINITION
Insulation	(a) Separation of bodies by means of non-conductors to prevent transfer of electricity, heat, sound etc. (b) The material used for insulating.
Insweep	An inward curved or tapered portion of a glass container, which joins the lower part of the sides to the base. Also called heel or murgatroyd.
Interior shroud	A barrier used to cover material packed in fully sheathed crates, thus protecting the contents against penetration of water.
Intermediate pack	A wrap, box, or bundle that contains two or more unit packs of identical items.
International Civil Aviation Organisation (ICOA)	A group which sets the standards for international transport of dangerous goods.
International Maritime Dangerous Goods (IMDG) Code	Regulatory documents which implement the requirements of the IMO.
International Maritime Organisation (IMO)	A group which sets the standards for international transport of dangerous goods by sea.
Item	(a) An object or a defined quantity of material on which an observation or a measurement may be made. May be called unit of product. (b) As used herein and in other standardisation documents, the term 'ITEM' includes, but is not restricted to, materials, parts, components, sub-assemblies, equipment's and items of issue. **Critical item** (a) Items having close tolerances or delicate construction, or being of perishable nature, the deterioration of which would result in premature failure or malfunction of the item or equipment in which it is installed, or to which the item is related. (b) Items not necessarily having close tolerances, or being of delicate construction or of perishable nature but which, if deteriorated or contaminated, could endanger personnel, equipment or facilities by creating hazardous operating conditions.

TERM	DEFINITION
Item (Cont'd)	**Delicate item** Any item, which is, so constructed that; small or moderate forces will either distort, displace or deform elements or portions of the items to the extent that malfunction or misfit of the item occurs. Examples of delicate items include such finally balanced mechanisms as gyroscope equipment, potentiometers, galvanometers, devices containing filaments and time and dimension measuring devices. **Item designation** The exact name and description of an item as it appears in the contract, purchase order requisition. **Item of equipment** A collection of assemblies, sub-assemblies or parts which, when assembled, is functionally complete and constitutes a whole part for supply purposes. **Rigid item** An item which does not change its shape without being permanently marked or damaged when subjected to physical force. **Item of supply** (a) Includes, but is not restricted to, materials, parts, components, sub-assemblies, equipment's and items of issue. (b) Anything handled by the logistics system under a unique stock number. **Item name** The approved word or phase by which the item is defined in the Defence Cataloguing System.
Jar	A wide-mouthed container usually of glass, ceramic or plastic.
Jerry can	A receptacle made of metal or plastics of rectangular cross-section, with a filling and pouring orifice.

TERM	DEFINITION
Joint	That part where two members or elements of a structure are joined or fitted together. **Butt joint** - A joint where two end surfaces are bonded together. **Glue joint** – The area of a bonded assembly where the adhesive and the adherent are in contact. **Glue-lap joint** - A term used in the fibreboard container industry to describe a glued joint or a manufacturer's joint made by the container manufacturer. **Lap joint** - A joint made by placing one adherent partly over another and bonding together the overlapped portions. **Linderman joint** - A machine-made dovetail joint used for joining the long and wide faces of timber containers to each other. **Manufacturer's joint** - A joint made by the manufacturer when constructing a container. **Packers joint** - That which has an insufficient amount of adhesive to produce a satisfactory bond. **Starved joint** - A joint which has an insufficient amount of adhesive to produce a satisfactory bond. **Tongue and groove joint** - A method of machining timber boards along their edge, one edge in the form of a tongue and the other as a groove, the size of the tongue and groove being such as to allow them to interlock.
Joist	A member, which extends across a crate beneath the top to support and transfer the vertical stacking load to the side panels.
Jute	The fibre of the jute plant from which burlap cloth is woven.
Juddering	(a) The act of vibrating with intensity. (b) To jar strongly.
Kiln-dried	A process whereby articles are artificially dried in a kiln to lower the moisture content.
Kit	A collection of related items issued as a single item of supply.
Knot	Round, hard defect in timber; a cross section of a branch imbedded in wood.

TERM	DEFINITION
Knurling	Serrations round the top edge of a closure to provide good grip for screwing or unscrewing.
Label	A slip of paper or printed material attached to an object to indicate contents, origin, manufacturer, or address of destination. **Die-cut label** (a) A label cut out by a die-cutting machine. (b) A pressure-sensitive label mounted on a release liner from which the matrix or waste has been removed. **Gummed label** A label made of paper or other material coated on one side with a water-moistened or solvent-activated adhesive. **Heat-seal label** A label made of paper or other material coated on one side with a heat-seal coating, usually of thermoplastic resin and characteristically difficult to remove after application. **Heat label** A label printed with special inks on a web transfer from which it is transferred to a container by the application of heat as it contacts the container surface. **Pressure sensitive label** A label backed by pressure-sensitive adhesive. **Strippable label** A readily removable label usually applied to glass containers. **Thermoplastic label** A dry plastics adhesive-backed label, which is activated by heat before it, is applied. **Transfer label** Label consisting of a transferable part and backing which is removable after application, eg. motor registration. **Label layout** Physical measurements and design of a label.

TERM	DEFINITION
Label paper	Any paper sized for label stock. Label paper may be plain or gummed.
Label recess	A recessed area, usually on the body of the glass container, to accommodate a label and protect it from scuffing.
Lacquer	A protective coating of a resin or cellulose dissolved in a volatile solvent. It may be transparent, translucent, or contain pigments.
Laminate	(a) A product obtained by bonding two or more layers of material. It may be any combination of films, foils, papers, textiles or other materials. (b) To bond layers of material with an adhesive. **Extrusion laminate** - A laminate produced by combining two or more extruded layers of material which are subsequently bonded. **Parallel laminate** - A laminate in which all the layers of the material are oriented approximately parallel to the grain or strongest direction in tension.
Laminant	An adhesive designed for the purpose of combining and bonding a combination of film, foils, plastics, paper or other material in sheet or web form.
Lamination	The process of laminating
Laminating techniques	(a) **Wet laminating** - is joining two or more webs with aqueous or solvent-based adhesives, which are driven off after joining. (b) **Dry Bonding** - is applying adhesive to one of the webs, drying or curing, and joining the webs with heat and/or pressure. (c) Other common laminating techniques are extrusion and hot-melt in which the adhesive is introduced in hot liquid form and the bond is effected when it solidifies.
Lap	(a) The part of a material, which covers, or partly covers, another part; the part which two thicknesses of material are bonded together. (b) The portion of cover paper that overlaps where ends of paper are joined on base, lid, tray, shell or other part of a set-up paper box. (c) An overlapped joint consisting of two thickness of can body plate or ‘faces’ which are not interlocked or mechanically secured but are sealed and bonded by welding at the extremities of the side beam.
Layer	One thickness of material, a ply. A group of items, a single unit of depth.
Layer-pad	A sheet of material used for separation of tiers of items.

TERM	DEFINITION
Lid	A removable closure, which is a component of a container and which may be hinged or otherwise attached.
Life of type	The estimated time for which an item will be a current Service requirement.
Lifting eye	An attachment to containers and equipment designed to facilitate handling, loading and storage.
Liner	(a) A separate inner container specifically designed to fit within a container to act as a barrier, made from a material which is more compatible with the container's proposed contents than the material used for the outer container. It may be of flexible or non-flexible material, eg. a bag intended for insertion in another container as loose liner. (b) A chemically resistant coating applied to the inside of a container to prevent corrosion. (c) A gasket material inserted into a closure to seal the closure against leakage of the container contents. (d) The flat paper component of corrugated fibreboard.
Lining	**Mill lining** – A lining method in which paper is pasted to paperboard in the reel in the mill. **Sheet lining** - A lining method in which paper is pasted to paperboard, sheet by sheet. **Vat lining** – A method of lining paperboard in which the top or bottom liners or both are of different quality from the centre of the paperboard. The liners and centre are usually combined into a board at the wet end of the papermaking machine.
Linerboard	(a) A paperboard used as a liner in producing fibreboard. (b) A gasket material applied to the internal head and walls of the closure to form a seal between the closure and the container.
Load	(a) A package or group of packages representing a shipping unit, eg. a rail truck load, a steriliser load or the content of a shipping container. (b) To load for transportation. (c) A quantitative term denoting the contents of a container, pallet, or means of transport. **Type of Load** - is determined by the exterior configurations of the item to be packed:

TERM	DEFINITION
Load (Cont'd)	**Average load** - A load, the contents of which are moderately concentrated articles packed directly into a transport container (providing support at several points on each face of the container), or are subjected to an intermediate form of packing, such as wrapping, pads, wadding, partitions, chipboard boxes or other types of suitable interior packing, and packed into a transport box, providing support on all faces of the container. **Difficult load** - A load in which articles require a high degree of protection to prevent puncture, shock or distortion of the container in which they are packed; or in which the articles packed do not provide support to the faces of the shipping container. **Easy load** - A load in which the contents have a low or moderate density and are prepacked in one interior container which completely fills, and, in some instances, adds rigidity to the outer shipping container, or where the contents themselves completely fill, support, and lend rigidity to the shipping container. Easy load items are those not easily damaged by puncture or shock, and do not shift or flow within the package. **Palletised load** - A regular stack of a commodity on a pallet for ease in handling by mechanical equipment. The load may be loose or it may be fastened to the pallet by means of shrink-wrapping, cordage, strapping, wires, adhesive, or other fastening devices. **Unit load** - A number of stacked packages secured when necessary by gluing, strapping, shrink or stretch wrapping and supported by pallet to make them suitable for transport and storage as a unit. The term may also be used to describe a single large item suitable for handling. **Load floating** - A method of packing in which the contents of the container are supported within the container by elastic devices or cushioning materials.
Loading plan	Any predetermined plan for the placement of items into a transport package or freight container in a particular pattern of loading for transportation.
Logistics	The science of planning and carrying out the movement and maintenance of the armed forces' requirements.
Logotype	A brand name or symbol, usually abbreviated to logo.
Lot	A Lot is all of the items of the one class manufactured in the same identifiable protection period by the same process under the same operating conditions and offered for delivery by the one supplier at the one time.

TERM	DEFINITION
Lug(s)	(a) Loose cloth formed by stitching or tying at corners of bales, strusses or bags to facilitate handling. (b) One of the projections on a lid (cover) by which the lid may be fixed.
Machine direction (MD)	The direction that a web travels during its manufacturer.
Machineability	The capability of a material or a container to be handled by a machine. The following are examples: (a) The ability of an adhesive to be handled and applied to an adherent by a machine. Sometimes referred to as 'runability'. (b) The ability of an assembly to be further processed without bond failure. (c) The ability of a cured adhesive to be machined by a cutting tool. (d) The ease of folding the flaps of a carton on a closing machine. (e) The smooth run of a flexible material (paper, film or foil) through the forming system of a form-fill-seal machine.
Machine surface	A turned, planed, shaped or milled surface of a metal part, as opposed to a rough cast or forged surface.
Manilla	Originally paper made from rope fibres (hemp, jute, manilla, etc) but now a descriptive term for paper or board of characteristic light brown or yellow 'manilla' shades.
Manufacturer	The actual producer of a product.
Marking	The application of numbers, letters, labels, tags, symbols, or colours to provide identification and instruction during shipping, handling, and storage.
Marker	A unit installed on machines, usually closing machines, to apply a distinguishing mark to a package. **Die marking** - An identifying mark, which is incorporated in a die and is thus, impressed into the product or the part it produces. **Register marking** - Thin crossed lines printed with each colour which should coincide, thus showing that each colour is superimposed exactly in register with another.

TERM	DEFINITION
Mass	The quantity of matter in a body. Mass may also be considered as the resistance offered by a body to change of motion. Masses are compared by weighing them. **Gross mass** - The combined mass of a container, its contents and all packaging materials. **Net mass** – The mass of the packaged commodity, excluding the mass of the packaging material and container.
Material	A generic term covering equipment, stores, and spares for military use.
Mechanical damage	Damage caused by the effects of storage handling or transport, eg. vertical load (compression), vibration or shocks. May be combined with climatic damage.
Melting point	The temperature at which a solid substance begins to melt under standard conditions.
Members	Components of a framed timber case which are secured to the other components to support the contents or afford protection from outside hazards. They may be intermediate, crosswise or lengthwise.
Membrane	A thin, soft, pliable sheet of animal or vegetable material, metals or plastics, eg. jar seal.
Memory (plastics)	The tendency of a plastics article to revert in to a size previously existing at some stage in its manufacture.
Method II pack	A pack, which includes a hermetically sealed container or a continuous barrier of material with a water-vapour transmission, rate below 2 grams per square metre per 24 hours. A desiccant, is included within the barrier.
Metrication	The expression of physical quantities and distances in Metric Units.
Microclimate	A term used by climatologists to designate the climate of a small, local area. The term has come into use to describe the 'climate' within a package and includes temperature, relative humidity, and chemical composition of the gases within the package.
Micro leakage	Minute quantities of liquids, which may seep in either direction through a seam after filling and closure.
Migration	The transfer of one or more components of an adhesive into the substrate or vice-versa.
Military packaging	Materials, methods, or procedures prescribed in NATO and nationally authorised documents such as standards, specifications, and drawings that are designed to provide the level of packaging necessary to prevent damage and deterioration during required distribution and storage.

TERM	DEFINITION
Modular coordination	A coordination dimension relationship between packages, unit loads, materials handling, transport and storage equipment.
Modular package	A package, container, or load, which is modular to the pallets and/or freight containers currently, used by the services for aggregation.
Modular container	One of a series of containers so designed that the panels forming the faces can be used interchangeably for several box sizes and the completed containers can be arranged, like blocks, in several patterns to fill the same cubic space.
Modulus of elasticity	The ratio of stress to corresponding strain within the elastic limit of a material, ie. The ratio of the change of a dimension to the force producing the change within the elastic limit of the test sample.
Modulus package	A package, container, or load which is modular to the pallets and/ or freight containers currently used by the services for aggregation.
Moisture content	The amount of water present in material such as film, paper and timber. Usually expressed as a percentage of the original mass of the test sample. **Equilibrium moisture content** - The percentage of moisture content of a material when it neither gains nor loses water when exposed to an atmosphere of given relative humidity. **Critical moisture content** - The moisture content of a material at which physical or chemical deterioration occurs to a degree sufficient to render it useable, unsealable or unpalatable.
Moisture resistant	Resistance of the passage or effects of moisture.
Monomer	(a) A relative simple chemical which can react to form a polymer. (b) The unit, simple molecule, or a substance constituted of such molecules, from which polymers are produced by polymerisation. Two or more monomers form a polymer.
Mould	(a) A hollow tool in which anything is cast or set. (b) An assembly of parts containing the space (impression) in which the moulding material takes its form. (c) A micro-organism. **Compression mould** - A mould, which is opened to receive the charge of raw material and which, forms the material to shape on closing.

TERM	DEFINITION
Mould (Cont'd)	**Mould cavity** - The portion of a mould impression. **Mould form, impression** - That part of a mould, which imparts shape to the moulding. **Mould resistant** - Resistant to growth of mould
Mouldability	The ability of a material to conform to the contours of a mould and to retain these contours when the moulding force is removed.
Moulding	(a) The process of shaping material with a die or mould by applying pressure and usually heat. (b) An object produced in a closed mould (eg. by compression moulding, transfer moulding, injection moulding). **Blow moulding** - A method of forming hollow objects by inflating a parision into a mould with compressed gas. **Centrifugal moulding** - The process of forming hollow cylindrical products by rotating about one axis at high speed, a mould containing a dry fusible powder and maintaining the rotation while fusing the polymer by the application of heat. **Cold moulding** - A special process of compression moulding in which the moulding is formed at room temperature and subsequently baked at elevated temperatures. **Compression moulding** - A process in which a quantity of plastics material powder, pellet or dough form is placed in the lower cavity of a heated mould and compressed by lowering the upper half. The material is then subjected to heat and pressure which causes it to flow and fill the contours of the mould. Thermosetting materials harden quickly under these conditions and can be ejected without chilling the mould. **Contact moulding** - The process of making reinforced plastics mouldings in which minimal pressure is applied during the forming and curing operations. Also called 'contact pressure moulding'. **Injection blow moulding** - A blow moulding process in which a parision is formed over a mandrel by injection moulding and blown to its final form and dimensions in a second mould. **Injection moulding** - The process of moulding a material by injection under pressure from a heated cylinder into the cavity of a closed mould. **Rotary moulding** - A process of moulding by injection, transfer, compression, or blowing in which multiple moulds mounted on a rotating table are automatically cycled through the moulding operations. **Rotational moulding** -A process analogous to rotational casting in which dry, fusible powders are distributed against the mould walls and fused.

TERM	DEFINITION
Moulding (Cont'd)	**Transfer moulding** - The process of moulding a thermosetting material by passage from a heated pot into the cavity of a closed heated mould. **Moulding contraction** - The difference in dimensions (expressed in mm, μm or percent) between a moulding and the mould cavity in which it is formed, both the mould and the moulding being at normal at normal room temperature when measured.
"M" Seam Mucilage	An adhesive prepared from a gum and water. Also. in a more general sense, a liquid adhesive which has a low order of bonding strength.
Multipack	A consolidation of packages containing non-identical items.
Multiple unit	The group of items, sub-assemblies, and components comprising a single unit for a specific assignment.
Multiwall	Having more than one wall or ply. In the case of bags, multiwall generally refers to more than two-ply construction, whereas two-ply construction is called duplex or double wall.
Nail	A spike of metal to fasten, fix or hold tight parts of a container. **Bullet head nail** - A nail having a plain cylindrical body with an integrally formed deep, circular, barrel-shaped head with a flat top surface. The ratio of the head diameter to the body diameter is approximately 1.4:1. The nails are mainly used in timber framing applications, and in the smaller sizes as general finishing nails. **Chequered head nail** - A round wire nail with the head marked with a chequered pattern. This is the type of nail in most general use for package manufacturer. **Clout nail** - A nail with a large flat head, used for fixing thin or less than tear-resistant material, such as felt or paper. **Flat head nail** - A nail having a plain cylindrical body with an integrally formed flat, circular head with parallel top and bearing surfaces and slightly rounded edge or rim. The ratio of the head diameter is approximately 2.5:1. These nails are mainly used in the fabrication of wooden containers and soft timber framing. **Lath nail** - A nail with a head slightly larger than that of a chequered-head nail. Usually supplied with a smooth (ie. not chequered) head. **Panel pin nail** - A nail with a plain cylindrical body with an integrally formed head, which is designed to penetrate into the surface of wood based panelling and for similar applications.

TERM	DEFINITION
Nail (Cont'd)	**Resin-coated nail** - A nail coated with resin or similar material to increase the grip in material. **Round wire nail** - A nail made from round section wire. This includes nails with various types of heads. The term is usually understood to mean a nail with a countersunk or flat chequered head. **T-bar nail** - A anil having a plain cylindrical body with a T-bar head manufactured from the same material. Used in mechanical nailing machines. **Triple-wall nail** - A nail with a body of square section, which has been twisted to form spiral, grooves in conjunction with a bevelled head. Nails are supplied with a round or square slotted washers when used in construction of triple-wall corrugated fibreboard boxes.
Nailing	**End-grain nailing** - The timber components of a box or crate nailed so that the shank of the nail is parallel to the grain. **Side-grain nailing** - The timber components of a box or crate so nailed that the nail direction is perpendicular to the grain direction of the timber. It gives increased holding power over end-grain nailing.
NATO Stock Number	The NATO stock number is made up of three parts, eg. 9150-66-088-7267. (a) The first four digits are known as NATO supply classification. (b) The second part of the NATO stock number is the National Codification Bureau Code. (c) The last seven digits are known as the Item Identification Number.
Neck	(a) The part of a container between the finish and the shoulder. (b) A contraction in diameter at one end of a container, eg. drum or pail as an aid to stacking. **Filler neck** - A dispersing closure applied to the filling orifice after filling and usually closed by a detachable screw cap. **Lever neck** - A particular design of seamless neck in which the primary seal between the plug and the neck is based on the plug and the neck is based on the principle of a lever ring and lid. **Screw neck** - A type of neck with a screw closure engages for sealing purposes. **Seamless neck** - A pouring closure, usually tapered, for use with liquid products which is sealed by a friction fitting internal plug (or cork shive) and capsule.

TERM	DEFINITION
Nesting	A container stacking system whereby one container fits into the top of another for the purpose of saving space or for the provision of stack stability.
Net mass	The mass of the commodity alone, not including any packaging material or container.
Net unit	(a) The area derived from the net unit load size load area. (b) The theoretical plan view dimensions of a unit load size load which are used as the basis for calculating the dimensions of transport packages, allowances.
Net weight	The weight of the commodity alone, not including any packaging material or container.
Noncritical	All items not meeting the criteria set forth items for critical items.
Non-fogging film	Film, which does not become cloudy from moisture, condensation caused by temperature and humidity changes.
Nylon	A generic term for a class of polyamides containing repeating amide groups connected by methylene units.
Nylon film	Transparent, high strength thermoplastic film usually used in thin sections laminated to other materials. High water vapour transmission rate, wide temperature range, moderate gas permeability.
Non-reusable	Expression or prefix used to denote that a package should not be returned for refilling.
Notch	Cut-away portions of a blank of a can, usually small and at the corners, to provide for double seaming.
Nozzle	A round metal or plastics fitting permanently fastened to a container at the opening to facilitate filling or pouring and to permit closure by means of a cap.
Off-core	The axial displacement of the core with respect to the complete roll of otherwise normal tape.
Oil water-displacing	An oil designed to ‘wet’ metal in preference to water.
Oil water-soluble	A petroleum oil containing soap, which enables it to form a stable emulsion with water. Used as a coolant, lubricant and rustproofing application. May contain sulphonated oils in place of soap.

TERM	DEFINITION
Oozing	The exudation of adhesive at the sides of a roll of tape, resulting in sticky edges.
Opacity	Resistance of a body to transmission of light. The degree of opacity of paper is measured by an opacimeter.
Open-cell (foamed plastics)	A cellular plastic in which there is a predominance of interconnected cells.
Orientation	In the manufacture of plastic films and sheets, the stretching by cold drawing or other means so that the molecules are re-arranged into an orderly structure, thus substantially increasing the strength of the material in the direction of the stretch. Films or sheets may be stretched either laterally or longitudinally, in which case the orientation is described as uniaxial, or in both directions when it is called biaxial orientation.
Oscillograph	Instrumentation for measuring impact or vibration in the handling of packages. The equipment is more complex than that found in ordinary impact recorders, and is used to make more detailed observations.
Overpack	An outer container usually made of steel, wood, or fibre designed to enclose and protect one or more less durable inner container.
Overpackaging	A condition where methods used to package an item exceeds the requirements for adequate protection.
Over-wrap	A wrapper, applied over a package, carton or box.
Owner's risk	The consignor undertakes or agrees to relieve the carrier for all liability for loss, injury, damage, deviation, mis-delivery, delay, detention except upon proof that the same arose from the wilful misconduct of the carrier services.
Oxidation	The process of uniting with oxygen, eg. rust on iron.
Pack	To place materials into a container for handling, storage or transport. **Commercial trade pack** - The package normally used by the manufacturer for commercial deliveries to a destination that would involve movement by any means of transport. The standard of packaging shall ensure that the condition of the supply on delivery to the nominated receiving authority is identical to the condition in which it was packed by the supplier. The supplier shall provide complete identification markings in accordance with the terms of the contract.

TERM	DEFINITION
Pack (Cont'd)	**Consumer pack** - (a) Any package that ultimately reaches a consumer as a unit of sale (b) A container which, by reason of construction or design, cannot safely be shipped without further packaging, generally in a transport package. **Export trade pack** - The package normally used by the manufacturer for commercial deliveries of the supplies. The standard of packaging shall ensure the delivery of the supplies in a serviceable condition to the nominated receiving authority complete with identification marking in accordance with the terms of contract **Level A pack** - The standard of packaging to ensure serviceability of supplies for a minimum period of three years from the date of packaging, including all-weather protection for consignment, multiple handling, indeterminate conditions of storage and redistribution. **Level B pack** - The standard of packaging to ensure serviceability of supplies for a minimum period of three years from the date of packaging including all-weather protection for consignment, multiple handling and known conditions of storage and redistribution. **Level C pack** - The standard of packaging to ensure serviceability of supplies for a minimum period of one year from the date of packaging and including protection against climatic and physical damage during consignment, handling and storage from supply source to the receiving authority. **Preproduction pack** - A package which will be identified as the package furnished in fulfilment of a contract. **Standard pack** - The approved method of packaging items or groups of items to form a standard package. The package may be- (a) The commercial trade pack normally used by a manufacturer for deliveries within Australia (b) The export trade pack normally used by a manufacturer for deliveries overseas; or (c) A military pack based on the level of serviceability.
Package	(a) One or more articles or pieces contained or secured into a single unit (b) The product of a complete series of packaging operations. **Blister package** - A type of package where the item is secured between a preformed (usually transparent plastics) dome and a paperboard surface or 'carrier'.

TERM	DEFINITION
Package (Cont'd)	**Breathing package** - A package closed in such a manner as to permit the passage of air or gas under varying conditions of temperature and pressure. **Package design authority** - An authority responsible for a detailed packaging design; may also but not necessarily be the design authority for the item to be packaged. **Degradable package** - Packaging designed to decompose within a specified time under the action of natural agencies, either physical or chemical, eg. biodegradable (by living organisms) photodegradeable (by effects of light). **Environmentally responsible package** - A package designed having regard to its effect on the environment. **Pillow package** - A package formed from plastics tubing which is flattened and sealed at both ends. Generally resembles a 'pillow' and is not usually intended to be resealed. **Primary package** - Any packet, envelope, box, jar, or the like, which is in intimate contact with the product and which is not intended to serve as a transport package. **Recyclable package** - A package made of a material that has the potential to be conveniently and economically reused in similar or alternative form. **Returnable (reusable) package** - A package which is designed to be reused without alteration. **Secondary package** - A package, which combines a given quantity of primary packages, and is designed as a transport package. **Skin package** - A package in which the article is placed on a porous but rigid backing sheet. It is then covered by a plastics film which is heated while a vacuum is applied to draw the film around the article. **Transport package** - Package intended for the distribution of one or more articles such as primary or secondary packages.
Packaging	The operations involved in the preparation of materiel for distribution, transportation, storage, and delivery to the user utilising environment responsible practices. The term includes preservation, packing, marking, and unitisation. **Absorbent packaging** - An absorbent placed within a package to take up liquid resulting from leakage or liquefaction of the package contents. **Barrier packaging** - A method of protective packaging in which the packed item is secured to a wooden base and then fully enveloped in a dustproof or water vapour barrier material.

TERM	DEFINITION
Packaging (Cont'd)	**Combination packaging [ADG Code]** - A combination packaging consists of one or more inner receptacles which separately would not constitute a sufficiently safe packaging for transport purposes and thus have to be placed in an outer packaging. **Composite packaging [ADG Code]** - A composite packaging (plastic material) consists of a plastics receptacle and an outer protection (eg. sheet metal, fibreboard, plywood) constructed so that the receptacle and outer protection form an integral packaging for transport purposes. Once assembled, it is filled, stored, shipped and emptied as such. **Controlled atmosphere packaging** - Replacement of air inside the package with an inert gas eg. nitrogen, carbon dioxide. **Contour packaging** - A flexible clinging wrap that will closely fit all surfaces of an irregularly shaped item. **Float packaging** - A method of interior packaging designed to protect the packed article from shock and vibration by completely enclosing it in cushioning material. **Gas packaging** - A form of packaging in which an item is protected by an inert gas such as carbon dioxide or nitrogen. **Inner packaging [ADG Code]** - A packaging or receptacle that is in contact with the goods it contains. **Packaging methods** - (a) **Method 0 packaging.** The method of packaging in which no preservatives are applied to the articles or commodities received for packaging, nor is action taken to prevent ingress of water or water vapour into the package. (b) **Method 1 packaging.** The method of packaging in which deterioration of articles or commodities is prevented by the application of a preservative, but no action is taken to prevent ingress of water or water vapour. (c) **Method 1A & 1C packaging**. The method of packaging in which deterioration of articles or commodities by water vapour is prevented, where necessary, by the application of a preservative and in which the wrapping or container renders the package waterproof (see DEF(AUST)1000, PART 3 for more detail). (d) **Method 11 packaging**. The method of packaging in which the wrapping or container renders the package waterproof and provides a water-vapour barrier; a desiccant is included in the package.

TERM	DEFINITION
Packaging (Cont'd)	**Outer packaging [ADG Code]** - Means a package that forms the outer protection of a composite or combination packaging; and includes any absorbent material, cushioning and other components used to contain or protect inner receptacles or inner packagings. **Over packaging** - A term used to describe a packaging method, which exceeds that, judged to be necessary. **Strip packaging** - A method of packaging in which small articles such as capsules or tablets are packaged individually or in multiples in a continuous strip that is divided into segments or pockets that can be easily torn off or cut off. Strip material is usually a transparent, heat-sealing film, but heat-sealing foils or a combination of film and foil may also be used. **Packaging system** - A term used to describe a designed integration of properties of different packaging materials to protect packed goods against climatic, chemical and mechanical abuse during transport and storage. This includes also the dimensional relation of (a) primary packages with display cartons or primary packages with transport packages; (b) display cartons (secondary packages) with transport packages; (c) transport packages with pallets in forming unit loads; and (d) unit loads with freight containers or means of transport. **Under packaging** - A term used to describe a packaging method that is judged to be less than necessary. **Vacuum packaging** - A packaging process in which air is substantially removed from a container immediately prior to sealing.
Packaging level	The level of protection to be afforded an item to prevent deterioration or damage against hazards of handling, transport, and storage.
Packing	The selection of construction of the shipping container and assembling of items or packages therein.
Packing list	A list of contents within a package or container.
Pad	Sheet material used for protection. **Flap pad** - A sheet of corrugated or solid fibreboard used inside the top or bottom of fibreboard containers to fill the gap between the flaps and avoid ingress of dirt.

TERM	DEFINITION
Pallet	A flat base for combining stores or carrying a single item to form a unit load for handling, transportation and storage by materials handling equipment. **Pallet area utilisation** - The area occupied by the transport packages, expressed as a percentage of the overall area of the pallet deck. **Captive pallet** - A pallet used only in a particular set of operations. **Double-faced pallet** - A pallet with similar top and bottom decks, either of which would take the load (not suitable for use with pallet trucks). **Four-way pallet** - A pallet whose bearers permit the entry of tines from four directions. **Non-captive pallet** - A pallet used in unrestricted operations (private, corporate or military) and may include a common carrier service and pallet exchange pools. **Reusable pallet** - A pallet designed to be used indefinitely. **Single-faced pallet** - A pallet with a top deck to take the load and a bottom deck acting as a base (for use with pallet trucks). **Two-way pallet** - A pallet with bearers that permit the entry of tines from two opposite directions only. **Universal pallet** - A pallet with a top deck to take the load and a bottom deck of maximum area consistent with the use of pallet trucks.
Palletised unit load	Quantity of any item, packaged or unpackaged, which is arranged on a pallet in a specified manner and securely strapped or fastened thereto so that the whole is handled as a unit.
Palletising pattern	A system describing layouts of transport packages to form a unit load.
Panel	(a) Any face of a container such as a side, end, top or bottom (b) That part of the flat surface of a container which is raised or depressed above its surroundings to stiffen the surface or alter the can capacity. (c) To distort a round package by forcing in the sides to produce flat surfaces. (d) A can in which an internal vacuum has caused one or more flat surfaces in the body (panelling).

TERM	DEFINITION
Paper	Continuos felted web of vegetable fibres deposited from a water suspension onto a fine wire screen. **Acid-free paper** - Paper which does not contain free acid. **Acid-resistant paper** - Paper manufactured, treated, coated or laminated to resist the action of acids. **Alkali-resistant paper** - A paper with a high degree of resistance to alkali, used in the wrapping and packaging of alkaline materials such as soaps and adhesives. **Anti-tarnish** - A paper to which substances have been added to protect bright metal surfaces from tarnishing. **Bag paper** - Paper specifically manufactured for making bags. **Benzoate paper** - Paper treated with benzoate, generally sodium benzoate, to inhibit corrosion when in contact with certain metals. **Bituminised paper** - A wrapping material consisting of one or more sheets of paper, coated or impregnated with tar (coal or wood), pitch or bitumen to give them some degree of water resistance. **Bleached paper** - Any grade of paper made from bleached (white) pulp, such as kraft, sulfite and glassine. Paper grades made from a mixture of bleached (white) pulp. Paper grades made from a mixture of bleached and unbleached pulps, or pulps bleached to an intermediate stage are called semi-bleached. **Bond paper** - Grade of printing paper used where strength, durability and permanence are essential requirements. **Box enamel paper** - Paper, coated and highly glazed on only one side; chiefly used for covering boxes. **Calendered paper** - Paper or paperboard to which some degree of smoothness or gloss has been imparted by passing between calender rolls. **Cloth-lined paper** - Paper which is cloth reinforced on only one side. **Creped paper** - A paper (usually kraft) crinkled by creping; used for wrapping purposes or for manufacture of creped paper tape. **Glassine paper** - Grease-resistant paper, which has been dampened and then highly glazed by heat and pressure. **Glazed paper** - Paper or paperboard which has been subjected to an additional process (such as supercalendering) after manufacture on the paper machine on one or, more usually, both sides of the paper.

TERM	DEFINITION
Paper (Cont'd)	**Grease-resistant paper** - Paper or paperboard that has been either mechanically or chemically treated during manufacture in order to resist penetration by fat, oil or grease. **Gummed paper** - Paper coated with an adhesive, which may be reactivated with water. **Kraft paper** - A strong paper consisting of bleached or unbleached cellulose fibres from pulps made by the kraft process. **Kraft liner paper** - A kraft paper or paperboard usually used as the outer or inner facing in the manufacture of solid and corrugated fibreboard, and in the manufacture of fibreboard drums. **Manilla paper** - A paper made from unbleached woodpulp, sometimes containing hemp and manilla fibre, of characteristic creamy colour. **Paper stock** - (a) Pulp, which has been beaten and refined, to which resins, dyestuffs and fillers have been added and which after dilution is ready to be formed into a sheet of paper. (b) Wet pulp of any type at any stage in the manufacturing process. (c) Paper or other material to be printed, especially the paper for a particular piece of work. (d) A term used to describe a paper suitable for the indicated use eg. coating raw stock, milk-carton stock, tag stock or towel stock. **Reinforced paper** - Paper reinforced with threads or cloth to improve its mechanical strength. **Tissue paper** - Thin paper either plain or creped, mainly made from chemical pulp and usually having a grammage in the range 12 g/m² to 32 g/m². **Unbleached paper** - Any type of paper or board made from unbleached pulp. Depending on the natural character of the pulp, plain, unbleached paper varies from a very light brown for sulfite stock, to the fairly dark brown hues characteristic of unbleached kraft paper. **Vapour phase inhibitor paper** - Paper which has been treated with a chemical the vapour of which will provide protection against corrosion of ferrous metals in its immediate proximity. **Vegetable parchment** - Paper that has been treated by sulfuric acid, and subsequently neutralised, to decrease its paper permeability to grease and increase its resistance to boiling water. Widely used for packaging and the protection of products (especially foodstuffs) containing both moisture and fats.

TERM	DEFINITION
Paper (Cont'd)	**Water-resistant paper** - Usually a kraft paper which has been manufactured or subsequently treated with water repellent substances. **Waxed paper** - Paper impregnated or coated with paraffin wax or a mixture of paraffin wax, microcrystalline wax and synthetic resins. **Wet strength paper** - Paper which is treated to retain an appreciable proportion of its strength when saturated with water. Wet strength paper is not necessarily more water-repellent, nor less permeable to water vapour than ordinary paper, although it may be specially treated to render it so.
Paperboard	A fairly rigid paper with a grammage usually greater than 225 g/m². Nevertheless some products over 225 g/m² are called papers and some, below 225 g/m² are called paperboards. **Box board** - A general term designating the grades of paperboard used for fabrication of folding and set-up boxes (cartons). **Carton board** - Paperboard having a thickness within the range of 0.25 mm to 1 mm and designated to fold without cracking at the crease. **Chipboard** - Type of paperboard made mainly from recycled paper. **Filler board** - A paperboard suitable for being lined on one or both sides to make solid fibreboard. Sometimes called 'container middles'. **Hard board** - Fibreboard manufactured from liqno-cellulosic fibres by compressing and drying. **Lined board** - Any paperboard that is faced with paper, eg. vat-lined (lined at the wet end of the paper-making machine). Mill-lined (lined by pasting paper to the paperboard in the reel) or sheet-lined (lined by pasting paper to the sheets of paperboard). **Mill board** - A type of paperboard usually made from reclaimed fibres. **Pulpboard** - A paperboard manufactured in one separate thickness or by bringing two or more thicknesses of the same boards or paper into a single structure.
Parchment	A paper-like material derived from animal skins.
Partition	(a) Any wall or panel, which separates, cells, sections or units in a container. (b) Slotted pieces of rigid or semi-rigid material which, when assembled, form cells into which articles may be placed and separated.

TERM	DEFINITION
Paster	A machine, which applies adhesives to two or more, plies of paperboard and combines them into a single sheet of solid fibreboard.
Pattern	(a) A model, example, or guide that is to be followed. (b) A description of the form, quality and function of an item of supply in terms of drawings, specifications, or physical specimens, to permit identification or procurement to appropriate standards of uniformity and interchangeability. **Nailing pattern** - Specific instructions used to describe the location or position of nails used on timber containers.
Peg	A projection within a moulding for holding a device for applying the contents of a container.
Performance Oriented Packaging (POP)	Type of packaging based on the ability of packaging to perform to a specified level of integrity when subjected to performance tests.
Permeability	(a) The rate of diffusion of gas, vapour or liquid under a pressure gradient through a porous material under specified conditions. (b) The rate of water vapour transmission through a given area of material under specified conditions.
pH	Negative decimal logarithm of hydrogen-ion(H) concentration in moles per litre, giving measure of acidity or alkalinity of a solution. The range is from 0-14. Lower values relate to acidity. Neutrality is indicated as pH 7.
Phasing	An undesirable separation of an adhesive into layers of one or more components.
Phelgmatizer	A substance which when mixed with dangerous goods reduces the hazard.
Physical Distribution management	A method of organising management by the practical integration of the packaging function with other functions in the business particularly shipping, receiving, transport, storage, inventory control and finance. Physical distribution theory particularly emphasises the importance of scientific protective packaging, package testing, use of modular dimensions in all packages and containers and the part of the package in serving the needs of customers.
Pickling	The process of removing scale or oxide films from metals by means of acid solutions; the most commonly used being sulphuric acid at dilutions of up to one in ten.
Pilot model	A full scale working model to prove functioning and the application of techniques.
Pitting	Depressions in a metal surface caused by corrosion.

TERM	DEFINITION
Plank	A strip of timber, usually at least 150mm wide and 40mm or more thick.
Plastic	Capable of being moulded, modelled or deformed continually and permanently without rupture by a stress which exceeds the yield value.
Plastics	A generic term for an arbitrary group of materials based on synthetic resins or modified natural polymers, which at some stage of manufacture can be cast, moulded or polymerised aided in many cases by heat and pressure.
Plasticity	A qualitative term referring to a material property which enables it to be continuously deformed without rupture when acted on by a force sufficient to cause flow, and to retain its shape after the applied force has been removed. Flow above a yield value.
Plasticise	To soften by incorporation of a plasticiser.
Platform	A carton fitment, which is used, where the contents are to be supported or held in position by shaped holes cut in the fitment.
Ply	(a) A fold, or layer, as in a laminate. (b) One of the filaments or shrouds of a twisted thread. (c) A sheet or layer of pulp. Paper or paperboard may consist of a single ply or two or more plies of the same or different material.
Plywood	Multiple sheets of timber glued together, usually with the grain of adjacent plies at right angles to each other.
Poisonous substance	Any substance or matter, which introduced to or absorbed by a living organism, is capable of destroying or impairing life.
Poly-carbonates	Polymers containing a carbonate linkage. Characterised by great toughness and strength and wide temperature resistance. Transparent. Finding use in some high-value blown bottles and thermoformed packages.
Polyester film	Thermoplastic film of high strength, transparency, abrasion resistance, toughness, wide temperature resistance, and moderate permeability. Generally used in sections and laminated to less expensive materials for body, sealability, or other desired properties.
Polyethylene	A thermoplastics resin which is readily fabricated by all thermoplastic processes. Main packaging uses are blow moulded, injection and rotationally moulded containers extruded film. There are three major groups:- (a) **Low Density** (sp gr 0.0910 - 0.925) Tough semi-flexible shock resistant materials. Resistant to a wide range of chemicals but are attacked by many solvents and essential oils.

TERM	DEFINITION
Polyethylene (Cont'd)	(b) **Medium Density** (sp gr 0.926 - 0.940) Polyethylene having properties intermediate between high and low density. (c) **High Density** (sp gr 0.926 - 0.940) Materials which are more rigid and have a higher softening point than medium and low density polyethylene. They have better resistance to swelling by aliphatic hydrocarbons.
Polymer	A compound formed by the linking of simple and identical molecules having functional groups that permit their combination to proceed to higher molecular weights under suitable conditions. Polymers may be formed by polymerisation or polycondensation. When two or more different monomers are involved, the product is called a copolymer.
Polymer-ization	A chemical reaction in which the molecules of monomer are linked together to form large molecules whose weight is a multiple of that of the original substance. When two or more different monomers are involved, the process is called copolymerisation or heteropolymerization.
Polyolefin	A plastic or resin prepared by the polymerisation of an olefin or olefins as essentially the sole monomer or monomers.
Polypropylene film	Transparent, tough, thermoplastic film made by extrusion. Unoriented film generally brittle at low temperature; this property as well as strength and clarity can be improved by orientation. Oriented film can be made heat-sealable, without danger of shrinkage, either by coating or heat-setting.
Polystyrene	A thermoplastics material featuring hardness, rigidity, clarity, heat and dimensional stability and ease of fabrication are common in all formulations. Modified formulations provide impact strength, chemical resistance and light stability. Widely used for injection moulding. May also be foamed and in this form, is widely used as an insulating and shock absorbing material.
Polyurethane	Foams are the most common form of polyurethane plastics. (a) **Rigid** - Produced by reacting polyisocyanates with hydrozyl resins in the presence of suitable blowing agents, catalysts and surfactants. The material may be moulded, cast in slabs, sprayed or foamed in place. Used as an insulating or shock absorbing material. (b) **Flexible** - Generally based on both polyether and polyester polyols. These foams are used as shock absorbing material in sheet form or chips.
Polystyrene film	Transparent, stiff film of high permeability and moderate temperature resistance. Made by extrusion or casting. Can be oriented to improve strength.
Polyvinyl acetate	A resin prepared by the polymerisation of vinyl acetate alone.

TERM	DEFINITION
Polyvinyl chloride (PVC)	The most widely used of the vinyls, this thermoplastic material is modified by the addition of plasticisers, fillers, stabilisers and colourants. It may be calendered, injection moulded, blow moulded, rotationally moulded, extruded and thermoformed. Wide usage includes film, bottles trays and coatings.
Polyvinyl chloride acetate	Copolymer of vinyl chloride and vinyl acetate.
Porosity	(a) The degree of permeability of material, having sufficiently loose texture to permit the passage of liquids or gases through pores. (b) A trade term which describes the ability of a material to transfer or absorb fluids.
Pre-heating	The process of heating a mould charge in powder or in pellet form, immediately before loading the mould.
Preproduction pack	The pack, which will be identified as the pack, furnished in fulfilment of the contract.
Preservation	The application of protective measures to prevent deterioration including cleaning, drying and the use of preservatives, barrier materials, cushioning and containers when necessary.
Preservation and packaging	Application or use of adequate protective measures to prevent deterioration including, as applicable, the use of appropriate cleaning and drying methods, preservatives, protective wrappings, cushioning, interior containers, and complete identification marking, up to but not including the exterior shipping container.
Preservative	A substance which when applied directly an item provides initial environmental protection. **Contact preservative** - A substance applied to directly to a surface to be protected.
Pressure	**Absolute pressure** - The total pressure with zero as a reference point. Usually expressed in kilopascals (kPa) **Atmospheric pressure** - The force per unit area exerted by the atmosphere. For meteorological purposes it is expressed in hectopascals. **Contact pressure** - The force applied per unit area to an assembly being united by adhesion.
Pressure sensitive tape	A combination of a pressure sensitive adhesive with a backing.

TERM	DEFINITION
Primary package	Also referred to as a Unit Package. (a) The first tie, wrap or container applied to a single item, multiples thereof, or group of identical items which provide a complete and properly identified package. (b) The unit container which is actually in contact with the contents.
Primary packaged quantity	The quantity of an item of material selected as being the most suitable for packaging for issue to the ultimate user.
Primer	The material used for priming.
Priming	The process of treating a surface of a substrate which is to be printed or laminated to obtain a specific bond performance.
Print contrast signal	In bar code, measure of the contrast between the bars and spaces of a symbol. It is based on reflectance measurements at a specified wavelength of light.
Product	Includes materials, parts, components, sub-assemblies, assemblies and equipment.
Production drawings	Approved design drawings supported by any necessary process drawings to permit production by a particular agency.
Proof	(a) Not affected by. (b) Resistant to movement through, as grease-proof, waterproof, moistureproof, gasproof. Under this meaning the term implies complete resistance, or zero passage; but in packaging, there are no flexible materials other than metallic foils free from all pin holes that afford absolute or complete proofness. Nevertheless, there are heavy gauge single films and laminated or coated films, other than metallic combinations, that closely approximate absolute proofness. Some suppliers of packaging materials use the term proofness in its absolute sense, but many more use it in the looser sense. (c) To apply special protective qualities. (d) A test photographic print or trial impression in a printing process taken for correction or examination. (e) To ‘pull a proof’ or to take a proof, or to prove.
Profile	The contour, outline or sectional view of a package.
Propriety item	An item or process in which the owner has a property right, either statutory or in common law, which precludes others from making, using, selling or acquiring that item or process.

TERM	DEFINITION
Propylene	Plastics based on resins made by the poly-merization of propylene with one or more other unsaturated compounds, the propylene being in greatest amount by mass.
Protective	Preventives applied to an item to protect it from deterioration by chemical attack. The material and composition of the item dictates the type of protective.
Protective coat	A film applied as a liquid to protect against chemical attack or mechanical change.
Protective film	A film applied as a liquid to protect against chemical attack or mechanical change.
Protector packing list	A device having a pressed recess or an opening flap designed to cover a packing list envelope and protect it in transit. The surface may be embossed with the lettering “Packing List’ or have printed legend thereon.
Prototype pack	A pack designed and constructed to meet specified requirements and which is the model for production packaging.
Pulp	The suspension of wood fibres obtained by chemical grinding of wood. The material from which paper, cellulose film and cellulose plastics are made.
Pulp board	Single or multiple paperboard in which all plies have the same composition.
Puncture resistance	The resistance of a material or a product to penetration or tearing by a pointed or blunt object.
Puncture test	(a) A test for measuring the resistance of board to puncture. (b) A test for measuring the strength of a material, primarily involving tear and stiffness, expressed in units as measured by the puncture tester.
Pyrenone	Insecticide used to treat paper to make it insect resistant.
Quality	(a) Fitness for purpose. (b) Includes quality of design, the degree of conformance to design and may include economic factors.
Quality assurance	All activities and functions concerned with the attainment and proof of the required quality.

TERM	DEFINITION
Quality Assurance Authority	The Quality Assurance Authority is the authority holding the responsibility for assuring the quality of supplies and services offered to the Australian Government for acceptance.
Qualification	The entire process by which products are obtained from manufacturers or distributors, examined and tested, and then identified on a Qualified Products List.
Qualified Products List	A list of products, qualified under the requirements stated in the applicable specification, including appropriate identification and reference data with the name and plant address of the manufacturer.
Quantity	The number of items to be contained in a unit pack. See also primary packaged quantity.
Quantity unit pack	The number of items to be contained in a unit pack. See also primary packaged quantity.
Quickstick	That property of a pressure-sensitive tape which causes the tape to adhere to a surface instantly, using minimal external pressure to secure more thorough contact.
Radiation	Emitted energy, eg. heat, light. **Infrared radiation (IR)** - Invisible light just below red light wavelength, eg. heat. **Ultraviolet radiation (UR)** - Invisible light just above the violet light band.
Radioactive	Referring to the state of a material exposed to ionising electromagnetic radiations or some other source of radioactivity.
Rail	An intermediate frame member of a crate or freight container placed parallel to a pair of edge members of part of their load.
Reactivation (of desiccants)	The driving off of absorbed water by means of heat or vacuum, thereby restoring the original capacity of the material to absorb water.
Receptacle	Has the same meaning as ‘packaging’.
Reel	A cylindrical device that has a rim at each end and an axial hole for shaft or spindle, and on which a product is wound to facilitate handling and shipping.

TERM	DEFINITION
Reinforced plastic	A plastic with some strength properties greatly superior to those of the base resin, resulting from the presence of high strength fillers imbedded in the composition. The reinforcing fillers are usually fibres, fibrics, or mats made of fibres. The plastic laminates are the most common and strongest type of reinforced plastics.
Reinforcing pieces	Pieces of timber added to face boards of wire-bound boxes for additional strength.
Resin	Solid or semi-solid organic products of natural or synthetic origin of high molecular weight. Most resins are polymers.
Resinification	The hardening of a pressure sensitive adhesive to the point where it has lost all pressure sensitivity but retains a tenacious bond, thereby making tape removal either very difficult or impossible.
Resistance	The ability of a material to withstand an applied force.
Resistant	A term suggesting 'difficult' rather than 'impossible', eg. child-resistant-difficult for children to access; or moisture-resistant-difficult for moisture to penetrate.
Retail trade package	That used for packaging commercial retail commodities.
Rheology	The study of the deformation of materials under load, eg. flow, elasticity, viscosity and plasticity
Ribbon wire	Wire of rectangular section having a width that is more than twice the thickness used to make box-closing staples.
Ridging	A longitudinal ridge on the outer layers of a roll of tape.
Rigid	A rigid item is one that is so constituted physically that force must be exerted to change its shape in any way and which will be permanently marked, or damaged by such shape-changing forces.
Ring crush resistance	The resistance of paper and paperboard to crushing forces applied to its edge.
Risk	**Carrier's risk** - A form of contract in which the contractor takes the ordinary liability of a common carrier and agrees to compensate for loss, injury, damage, deviation, mis-delivery, delay or detention. **Owner's risk** - A condition in which a consignor undertakes or agrees to relieve a carrier from all liability for loss, injury, damage, deviation, mis-delivery, delay detention except on proof that these conditions arose from the wilful mis-conduct or negligence of the carrier's services.

TERM	DEFINITION
Roll	The cylindrical configuration of a flexible material, which has been, rolled on itself such textiles, tape, abrasive paper, photo-sensitive paper and film, and may utilise a core with or without flanges.
Room temperature	The prevailing temperature. Indefinite, but implies temperature between about 15° and 32°.
Rotational moulding	A form of powder sintering in which a plastic powder is introduced into a heated hollow metal mould which is then rotated in horizontal and vertical planes either in separate stages or simultaneously. The powder becomes molten and fuses to the shape of the mould interior and is cooled before extraction as a complete moulding.
Rubber	The coagulated sap of certain tropical trees.
Rubber-synthetic	Any of numerous rubber like compounds eg. Polymers of isoprene, copolymers of vinyl acetate and vinyl chloride. **Cellular rubber** - Thin walled cells of vulcanised rubber filled with air or other gas, in which the cells are complete cells, cells communicating with one or more adjacent cells, or partly communicating cells. **Sponge rubber** - Cellular rubber (made from masticated raw rubber) in which the cells are all or partly communicating. **Latex foam rubber** - Cellular rubber made directly from liquid latex; the cells may be communicating or partly communicating and partly non-communicating. **Expanded rubber** - Cellular rubber (made from masticated raw rubber) in which the cells are structurally not communicating.
Rust inhibitor	A chemical agent, incorporated in a compound applied to a metal surface to prevent or reduce rust or corrosion. The term is usually applied to compounds, which can be removed by water, or solvent cleaners in order to distinguish them from paint films.
Rust preventive, temporary	A soluble oil-type coating for use between operations, during short term storage or inter-plant shipments.
Sachet	A small sealed bag used for packaging a variety of goods including foodstuffs and cosmetics
Sack	A large bag used as a transport package. **Valved sack** - A sack filled with a sleeve-like valve for ease of filling, with the pressure of the contents creating a self-closing or self-sealing effect.

TERM	DEFINITION
Sacking	A heavy jute usually constructed from very coarse yarn, of mass per unit area greater than 700g/m².
Saddle	(a) A fitment, part of blocking, which extends the area of contact for support of an article. (b) A folded paper applied to close a bag mouth.
Sample	A sample consists of one or more items (specimens) from a batch, the units of the sample being selected at random. The number of items (specimens) in the sample is the sample size. **Out-turn sample** - A sample sheet of a hand mill tin plate. **Reference sample** - A sample selected as a standard for future requirements. **Sealed sample** - Certified replicas of the physical specimens used as or in the sealed or master pattern, which may be issued for guidance in inspection or manufacture and for all other purposes for which patterns are normally used.
Saturated vapour pressure	(a) The partial pressure exerted at a given temperature by the vapour of a liquid in the presence of that liquid. (b) In connection with packaging, usually refers to the maximum possible partial pressure of water vapour in an atmosphere at a given temperature.
Saturation	The condition at which a substance will absorb no more of another substance.
Score	A line impression or a partial cut to a predetermined depth in a material to facilitate bending, creasing, folding or tearing.
Scraper	Mechanism by which the application of an adhesive film can be regulated.
Scrim	A woven or bonded mesh of glass, plastics or other fibres used to reinforce tapes.
Seal	Means of securing a container to prevent undetected loss or deterioration of contents. **Crimp seal** - (a) A method of heat-sealing thermoplastic coated papers or thermoplastic films by means of pressure exerted by knurled wheels or bars having a corrugated surface. (b) A method of applying a seal to aluminium or coated aluminium foil by crimping with a die, which is usually corrugated. (c) Any form of closure that is accomplished by crimping.

TERM	DEFINITION
Seal (Cont'd)	**Crown seal** - A crimped edge metal closure for a bottle, also available as a twist-off seal **Flavour seal** - A paperboard wad with a coated paper liner. The finish of the glass container is coated with an adhesive which, when the cap is applied, gives an airtight seal. On removal of cap the paper liner still adheres to the container. **Flat seal** - A method of heat sealing thermoplastic films or thermoplastic coated materials by means of pressure exerted by flat wheels or bars. **Inner seal** - A thin component of metal or plastics used as an additional seal in conjunction with screw and pourer nozzle. **Strapping seal** - A metal sheath or clip used for forming the joint with flat strapping. The seal may be formed with side flanges or projections bent to specify angles to enclose the overlapping strap ends on sealing , or it may be in coil stock, or strip form for use in machines capable of forming the seal around the strap **Vacuum seal** - A seal that will maintain a vacuum. **Venting seal** - A seal that functions as a check-valve, permitting gases generated by a product to escape after a predetermined pressure has been reached. **Wire seal** - A type of seal in which the overlapping wire ends are twisted while under tension to form a tie.
Sealing	(a) The closing of a container after filling too effectively retain the contents and protect them against deterioration or loss. (b) The final clamping, crimping, notching, twisting or welding of the strapping to form a joint. **Crimp sealing** - A sealing process in which the overlapping ends and enclosing seal are crimped together by pressing corrugations into their edges. **End sealing** - The process of treating the inside of the open end of a tube with a band of a suitable medium to give a hermetically tight when the tube is folded. **Heat sealing** - The process of treating the inside of the open end of a tube with a band of a suitable medium to give a hermetically tight seal when the tube is folded.

TERM	DEFINITION
Sealing (Cont'd)	**Solvent sealing** - A method of adhering packaging material, which depends on the use of small amounts of a volatile organic liquid to soften the coating of the materials, will adhere when the solvent evaporates. The solvent itself has no adhesive properties. **Weld sealing** - A sealing process in which the two overlapping strap ends are welded together either by friction or heat.
Sealing tool	A tool for crimping lug covers or cap seals and for inserting plastic spouts
Seam	A joint or method of connecting two or more parts. **Chain-stitch seam** - A seam in which the stitches are not locked, the looping of the threads forming a chain on the underside of the seam. **Lap seam** - A seam formed by two overlapping edges of a can body which are than bonded together at the extremities of the seams. **Plain seam** - A seam formed by sewing through two thicknesses of cloth. Bags are turned after sewing. **Welded seam** - A seam formed by electro-resistance welding and used to join the lapped longitudinal edges of drum or can bodies.
Self- certifier	An organisation or person, who acts as a certifier in his own packaging regard, approved by the competent authority.
Self-checking bar code	A bar code, which used a checking algorithm, which can be applied against each character to guard against, undetected errors.
Sensitive electronic devices	Electronic items, either alone or a part of assemblies, which are susceptible to damage from at least one of the recognised environmental field force hazards, including electrostatic, electromagnetic, or magnetic forces.
Serial number	The number appearing on the items as assigned by the manufacturer or the government for identification or control purposes.
Service standard	Standards established for preservation and packaging of goods in the armed forces.
Shake	A separation of fibres along the grain forming a crack or fissure in the timber, not extending through the piece from one surface to another.
Sheathing	The covering boards, which enclose a framed timber, case to improve strength and protection.

TERM	DEFINITION
Sheet	(a) Broad flat piece of thin material. (b) Set of prints on one piece of material for later division into units. (c) A rectangular piece of metal which is up to 3mm thick; above that it is called plate **Die sheet** - An accurate imprint for the precise location of cutting and scoring lines.
Shelf life	The length of time during which an item of supply, subject to deterioration or having a limited life which cannot be renewed, is considered serviceable while stored.
Shelf-life item	An item of supply subject to deterioration or unstable characteristics to the degree that a storage time period must be assigned to ensure that the item will perform satisfactory in service.
Shield, electrostatic	A barrier or enclosure that prevents the penetration of an electrostatic field.
Shipping container	A container, which meets minimum carrier regulations and is of sufficient strength by reason of material, design, and construction to be shipped safely without further packing.
Shive casks.	A thin wooden cork, wad or bung for sealing.
Shock absorption	**By a cushion** - The employment of a material to mitigate shock transmission to an item and to position it in a package by contact with all or part of its surface area, or the surface area of an inner container where used. **By suspension** - A system employed to mitigate shock transmitted to an item, and to position it in a package by the attachment of springing devices to predetermined points on the item of its inner container.
Shooks	Cut-to-size components of unassembled timber cases or crates.
Shrink equipment	The equipment used for applying hot air to packages, which have been wrapped in shrink film.
Shrinkage	Reduction of the dimensions of any material. May be caused by loss of moisture in the process of drying.
Shrink film	Thermoplastic film, which shrinks when, subjected to heat.
Shroud	(a) A protective water-resistant barrier material used to shed water from the top and sides of the article, while allowing free air circulation. (b) A rigid sleeve surrounding a container in a vacuum-filling machine, the purpose of which is to equalise pressure inside and outside the container to prevent its collapse during filling.

TERM	DEFINITION
Shroud (Cont'd)	(c) A corrugated fibreboard sleeve surrounding and supporting a unit load. (d) A barrier used to enclose material packed in an open crate, thus protecting the contents against spoilage.
Silica gel	A granulated form of colloidal silica possessing a fine absorbent, porous structure. After activation by drying, it can function as a desiccant. When dry and ready to use it is of blue colour. After absorbing moisture it becomes pink.
Sills	Frame members of the base section of a case, which are formed within the rectangle with their edges in contact with the bottom sheathing.
Size	A substance used in sizing to modify surface properties such as water absorption, scuffing and oil penetration. Sizing is the method of application.
Size, particle	The dimensions of solid or liquid particles, expressed in micrometres.
Sizing	The process of applying a material to the surface or throughout a substrate to modify its surface properties.
Skid	(a) An adjustable flat surface pallet designed to fit the size of the container being shipped (b) One of a pair or series of parallel runners, usually wood, affixed to the underside of boxes, crates, or an item to allow entry of trucks, forks or to facilitate sliding
Skid box	A metal, wooden or fibre box fastened to a platform raised on skid members or legs; it may or may not be collapsible.
Skidpack	Product covered by a vacuum closely fitting thermoplastic film, heat bonded to a porous, rigid, backing material.
Skinning	A phenomenon in which a layer at the exposed surface of an adhesive increases considerably in viscosity whereas the body of the adhesive remains relatively fluid.
Sleeve	(a) A tube to be slipped over one or more products, eg. sleeve of cans ends. (b) An open-ended shell made of paperboard, which is used, as an outer stiffener. Sometimes overwrapped with transparent film, where it is used in the place of an outer, leaving the unit cartons visible. (c) An insert made of corrugated fibreboard to reinforce a box.

TERM	DEFINITION
Slip-sheet	(a) A separator between sheets of film, foil, paper, board and the like, to prevent blocking and bracing and to facilitate removal of single sheets. (b) A sheet of material used instead of a pallet.
Slippage	A bodily movement of an applied tape under load.
Slit	A cut made in a sheet of material.
Slot	A long narrow aperture cut in material to admit some other part, or to allow folding of flaps of fibreboard boxes.
Solute	The dissolved substance in a solution.
Solvent	(a) A substance, usually a liquid, able to dissolve another substance. (b) That component of a solution which is present in excess, or whose physical state is the same as that of the solution. **Aromatic solvent** - Any solvent containing benzene or one of its derivatives, eg. toluene, xylene. **Auxiliary solvent** - Liquid material used in addition to the primary solvent. Generally used to replace part of the primary solvent to produce a specific effect or to reduce cost. **Fast solvent** - An organic solvent having a low boiling point as a consequence of which it evaporates rapidly.
Specialised container	Uniquely configured container designed to support and protect its prescribed contents while being handled, stored, shipped to, and unpacked by the user; or to protect personnel and equipment from hazardous contents.
Special-to-contents container (STCC)	A container specially developed to suit the protective needs of particular items, involving the design of the container or of the interior fitments, or both.
Specification	A clear and accurate description of the technical requirements for a material, a product, or a service, including the procedure by which it can be determined that the requirements have been met.
Split bottom	A deep fault in the bottom of a glass container, usually running radially but which can also extend up into the side of the container.
Spout	A fitting usually supplied in conjunction with a pouring orifice of a drum to direct the flow of the contents from the receptacle when it is being emptied.

TERM	DEFINITION
Spout (Cont'd)	**Flexible spout** - A moulded plastics pouring spout normally retracted into the container and protected by a metal seal until required for dispensing purposes. When the metal seal is removed the spout can be extended for pouring. Such spouts are normally provided with a venting device to facilitate pouring, a moulded plastics diaphragm or seal and a plastics screw cap for resealing. **Pull-up spout** - A tubular spout or nozzle inserted into the closure of a metal drum underneath the primary closure so that it can slide out to facilitate pouring and is then returned when the primary closure is to be replaced.
Spur	A sharp projection on the edge of the flange of a can body
Stabiliser	A substance, which slows down or prevents any, unwanted chemical or physical change, eg. separation of the components of an emulsion.
Stacking irregularity	Enlargement of the net unit load dimensions by irregular stacking, out-of-plumb stacking, out-of-square stacking, or a combination thereof.
Stain	**Delayed stain** - A stain which is not apparent immediately after removal of the tape, but which develops after exposure to light. **Permanent stain** - A discolouration, which cannot be removed by solvent. **Resin deposit stain** - A resin deposit causing discolouration, which can be removed by a solvent, which does not effect the base surface. **Reverse stain** - A difference in surface colour caused by the tape protecting the surface over which it is applied
Standard NATO bar code symbology	The NATO bar code with a human-readable interpretation (HRI) is defined in terms of size, density, contrast, and code pattern.
Staple	A U-shaped piece of wire or metal strip consisting of three parts (a) The crown, the exposed part of the staple when clinched. (b) The legs, the hidden part of the staple when clinched. (c) The points, which are chisel or diamond shaped, divergent or step cut ends to give desired clinch.
Stapler	Hand-or power-operated equipment for inserting and clinching staples.
Stapling	**Top stapling** - The sealing of filled boxes by wholly external stapling.

TERM	DEFINITION
Starch	The chief reserve carbohydrate of such plants as sago, wheat, corn, potatoes and tapioca; used as raw material for adhesives and for sizing paper, cloth and board.
Static dehumidification	Any process wherein the control of relative humidity in a container is based upon the use of desiccants and barrier materials having a low water vapour transmission rate.
Static electricity	Surface charges of electricity, which sometimes develop in bodies during handling, or in machine operation. It may cause undesired attraction, eg. dust on plastics films, give electric shocks, create sparks or dust explosions.
Stencil	(a) To letter, number or mark by means of ink or paint applied through a perforated or slotted rigid or flexible material. (b) A mark, letter, numeral or design produced by stencilling. (c) A suitably perforated sheet, plate or screen through which a colouring substance, such as ink and paint, can flow to produce the pattern formed by the perforations.
Stile	A vertical member in the end of a timber case.
Stillage	Small dots or short lines extending out into the glass mould cavity so as to provide surface decoration on the container surface. Commonly used to give a translucent or 'frosted' appearance, which also helps in avoiding excess scuffing at contact points of the container.
Stitch spacing	The number of stitches per unit length.
Stitching	The clinching of flat or round wire to form the manufacturer's joint on fibreboard boxes.
Stock number	A number, which is unique to the item which it, identifies. It comprises two basic components: a supply classification (ie. Class) and an item identification number which identifies the item within its supply classification.
Stopper	A closure which closes by its insertion into an orifice of a package.
Storage	(a) The act of storing, or the state of being stored. (b) The keeping or placing of property in a warehouse, shed, open area or other designated facility. Storage is a continuation of the receiving operation and is preliminary to the shipping and issuing operation.
Storage life	The length of time that a container and its contents will remain in a serviceable condition under specified conditions of storage. Storage life is shown on a container thus - "EXPIRES - followed by the month and year".

TERM	DEFINITION
Strapping	Securing of transport packages, unit loads or bundles of items by flat straps of steel, plastics or wires, fabricated to a specific tensile strength. **Expansible steel strapping** - A non-corrosive type of flat steel strapping which is corrugated at regular intervals to maintain constant tension throughout temperature variations. **Flat wire strapping** - Flat steel wire having a substantially rectangular cross-section. **Non-metallic strapping** - Strapping made of material other than metal, which may or may not be reinforced with glass fibres. **Nylon strapping** - Extruded polypropylene material of flat, rectangular cross-section and specified breaking strength. A pattern may be indented on the surfaces during the manufacturing process. **Polypropylene strapping** - Extruded polypropylene material of flat, rectangular cross-section and specified breaking strength. A pattern may be indented on the surfaces during the manufacturing process. **Rayon strapping** - Multiple, contiguous layers of rayon twine cord, joined by a gap-filling adhesive and fabricated in varying widths to a specified breaking strength. **Suspension strapping** - A system employed to mitigate shock transmitted to an item, and to position it in a package by the attachment of spring devices to predetermined points on the item and on its package. **Tensional strapping** - A specially processed metal or non-metallic strapping in various tensile strengths, either flat or round in cross-section, applied to packages by hand tools or machines and then sealed or twisted under tension to make a tie.
Strength	Resistance to applied force. **Bond strength** - The force required to break an adhesive bond. **Bursting strength** - The limiting resistance of materials to a pressure applied at right angles to their surface under defined conditions. **Compression strength** - The limiting resistance of materials or packages to a pressure. **Dry strength** - The strength of an adhesive joint, determined under standard conditions, when the adhesive is either fully dry, cured or set.

TERM	DEFINITION
Strength (Cont'd)	**Edgewise compression strength** - The resistance of corrugated fibreboard to the force applied in the direction parallel to the flutes of the board. This property in combination with either flexural rigidity or board thickness relates to the compression strength of boxes made from the board. It is expressed in kilo newtons per metre (kN/m). **Final bond strength** - The measure of bond strength of an assembly after a specified time from preparation of a joint. **Flexural strength** - The ability of a material to withstand breakage by folding. Usually expressed, as the number of folds required to cause failure. **Green bond strength** - The measure of bond strength of an assembly immediately after preparation of a joint **High wet strength** - A term used to describe paper or paperboard to which resins have been added to provide high wet strength. **Peeling strength** - The ability of a bond to withstand peeling stress. **Shear strength** - A measure of the resistance of a bond to shear stress, ie. the force required to pull adhering surfaces in a direction parallel to the surface. **Tensile strength** - The ultimate resistance offered by the material to longitudinal tensile stress. The maximum force divided by the original cross-sectional area of the test piece. **Wet strength** - (a) The strength of an adhesive joint before it has fully dried. (b) The strength of an adhesive joint determined immediately after removal from a liquid (most commonly water) in which it has been immersed under specified conditions of time, temperature and pressure. (c) The strength of paper or paperboard after soaking in water. **Yield strength** - The strength (either tensile or shear) at which a marked increase in deformation occurs without an increase in load.
Stress crack	(a) External or internal cracks in a plastic caused by tensile stresses less than that of its short time mechanical strength. (b) The development of such cracks is frequently accelerated by the environment to which the plastic is exposed. The stresses, which cause cracking, may be present, internally or externally or may be combinations of these stresses. The appearances of a network of fine cracks is called crazing.

TERM	DEFINITION
Stretch (of paper)	Extensibility of paper or board under tension. Stretch is usually determined in tensile testing equipment and recorded as the percentage of extension before the sheet breaks. Normal paper stretch is less than 5 percent, but by the use of creping, embossing, indenting and similar processes, up to 30 percent stretch can be obtained. Papers, processed to increase stretch, are widely used where paper wraps are to be moulded around complex shapes, and in bags and liners for free-flowing products. Stretch is also influenced by the moisture content in the air.
Stringers	Horizontal members connecting blocks or spaces and supporting the deck of a pallet.
Stringiness	The property of an adhesive that results in the formation of filaments or threads when surfaces with adhesive between are separated.
Strip packaging	A method of packaging in which small articles such as capsules or tablets, are packaged individually or in multiples, in a continuos strip that is divided into segments or packets that permit easy tearing off or cutting off. The strip material is usually a transparent, heat-sealing film, but heat-sealing metal foils or combination of film and foil may be used. Other applications of strip packaging are used to package small amounts of liquids, powders or granules in a series of small packets attached in a series or strip. In the manufacturing operation the gang principle may be used, followed by slitting into several strips of attached packages. Strip packaging is usually employed for convenience of the user where the entire contents of each packet are used at one time, eg, medicinals.
Strippable coating	A coating of plastic film, produced by dipping, brushing or spraying; the film is heavy enough to give protection to the object coated during shipping and storage, but has high tensile strength and low adherence characteristics, so it can easily be torn or stripped off. The method has been used to protect polished stainless-steel sheets, metal subject to corrosion, etc.
Strippable label	A label, usually on a glass container so adhered that it may be easily removed or so devised, eg, carried by a decorative coating, so that it can easily peeled off. Used for pharmaceutical's which are sold by prescription and therefore, re-labelled to include physician's name and directions for dosage.
Struts	Frame members of a timber case which are positioned between two parallel edge members to break down the longest dimension so that the diagonal braces can be placed at an angle of approximately 45 degrees to the horizontal.
Sublimation	The phenomenon of passing from a solid to a gaseous state without intermediate liquefaction. Sublimation of frozen water from foods causes freezer burn.

TERM	DEFINITION
Substance	(a) A kind of matter, with characteristic properties, and generally with a definite composition independent of its origin. (b) Grammage. The mass of a specific area determined under standard test conditions
Substrate	The web, sheet or layer to which a coating is applied. This term is used in a broader sense than the term adhered.
Supplies	All items of supply of whatever material.
Surface	**Critical surface** - A surface the function of which would be impaired by the mildest form of corrosion or other damage. **Machine surface** - The turned, planed, shaped or milled surface of a metal part, as opposed to a rough cast or forged surface. **Non-critical surface** - Surfaces for which criteria are not specified.
Surface resistivity	An inverse measure of the conductivity of a material and equal to the ratio of the potential gradient to the current per unit width of the surface, where the potential gradient is measured in the direction of current flow in the material. (Surface resistivity of a material is numerically equal to the surface resistance between two electrodes forming opposite sides of a square. The size of the square is immaterial. Surface resistivity applies to both surface and volume conductive materials and has the value of ohms per square).
Suspension packing	A method of packing whereby an article is suspended in a container by the attachment of energy absorbing devices.
Swage	A can body finish which creates the effect of a flush fitting for a slide-lid.
Swedge	An expanded hoop pressed into the drum body for strengthening purposes.
Swell	The condition of a container, usually of metal, in which one or both ends bulge outwards owing to the development of internal pressure. **Hydrogen swell** - A bulge in a closed metal can caused by hydrogen produced by reaction of metal with the contents of the can.
Symbol	In bar code, a complete bar code containing margins, start character, data characters, check digit (if any), and stop character.

TERM	DEFINITION
Tack	(a) The property of an adhesive that enables it to form a bond of measurable strength immediately after adhesive and substrate are brought into contact under low pressure. (b) Stickiness. (c) A small nail having a wide head. **Tack dry** - A property of certain adhesives, particularly non-vulcanising rubber adhesives, which causes two separate coats to adhere on contact at a stage in the evaporation of volatile solvent, even though each coat seems dry (non-tack) to the touch **Initial tack** - The tack of an adhesive developed immediately after application. Also called tack time. **Tack range** - The period over which an adhesive will exhibit tack under specified conditions
Tag	A flat tab, or strip and the like, attached to an article which may indicate any relevant information.
Tagger	A thin sheet of material, eg. aluminium foil.
Tape	A strip or band of paper, textile, metal, plastics or other material, used in packaging for both closing and opening a container. **Cellulose tape** - A translucent, pressure-sensitive adhesive acetate tape of cellulose acetate laminated to thin strong tissues. Ineffective on oily surfaces, but not affected by oil after application. **Creped paper tape** - A creped tape backing which conforms with the surface to which it is applied. **Double-faced tape** - A tape with adhesive applied to both sides of the backing, having a disposable liner to prevent face to face sticking of the adhesive. **Flat-backed paper tape** - A flat, uncreped tape backing which normally is not entirely conformable with the surface to which it is applied. **Gummed fabric tape** - Fabric coated with glue on one side, which becomes adhesive when moistened. **Gummed sealing tape** - A strip of paper (usually based upon kraft or reinforced paper) coated with an adhesive which is reactivated with water. **Heat sealing adhesive tape** - A tape which utilises an adhesive, which softens when, heated and hardens when cool.

TERM	DEFINITION
Tape (Cont'd)	**Laminated tape** - A tape construction which uses at least two different backing materials or a backing material and a reinforcing agent bonded together to form a composite backing. **Pressure sensitive tape** - A combination of a tape and a pressure sensitive adhesive. **Reinforced gummed tape** - A laminated gummed tape with superior mechanical strength. Reinforced consisting of scrim, fibres, threads of glass, textiles, plastics, metals or other materials is placed between two plies of laminate. Bonding may be achieved by bituminous or other adhesives. **Rope fibre tape** - A flat-back paper constructed of rope fibres which gives the paper high tensile strength in the lengthwise direction. **Shipping sack tape** - A heavy-duty creped kraft tape used for binding over the ends of multi-wall paper bags before or after closures are sewn with cotton thread. **Stay tape** - A strong tape used for sealing the manufacturer's joint of corrugated fibreboard boxes. **Strapping tape** - A gummed tape reinforced strongly in the machine direction with filaments of plastics, glass or textiles and used for banding packages. **Strippable tape** - A sealing tape, which may be readily delaminated to facilitate the opening of a fibreboard container. **Tear tape** - A tape which facilitates the opening of a fibreboard container.
Tear	(a) The rupture of a sheet of material eg. paper, film or textile (b) The percentage of area exhibiting fibre tear after a tape bonding test. **Initial tear** - Resistance to tearing of an undamaged, clean-cut paper. **Tear resistance** - Resistance of a material to the initiation of tearing.

TERM	DEFINITION
Tear (Cont'd)	**Tear strip** - (a) A narrow ribbon of film, cord or other material, usually incorporated mechanically in the wrapper or overwrap during the wrapping operation to facilitate opening of the package, eg. cigarette package opener. (b) The scored strip on a key-opening can. (c) The strip with a projection which, when pulled, permits the opening of the can, eg. ring pull on a beverage can. **Tear tab** - An extension of the layers of a coiled material in a lateral direction so that the edges no longer form a plane but a truncated cone.
Tearing bond	A type of bond where it is necessary to tear fibres of one or the other adherent sheets in order to separate them while at the same time there is no failure in adhesion or cohesion of the adhesive.
Temperature	**Curing temperature** - The temperature at which an assembly is cured. **NOTE**: The temperature attained during curing (adhesive temperature) may be higher than the temperature of the atmosphere surrounding the assembly (assembly temperature). **Drying temperature** - The temperature to which a material is subjected during drying. **Reference temperature** - Temperature specified for any particular test method. **Room temperature** - The prevailing temperature. An indefinite term, but implies temperatures usually around 20°C **Setting temperature** - The temperature at which an adhesive or an assembly is subjected to set the adhesive.
Thermo-elasticity	Rubberlike elasticity resulting from an increase in temperature.
Thermo-forming	Forming with the aid of heat. **Drape vacuum thermo-forming** - A thermoforming process in which a sheet is clamped in a moveable frame above the mould, heated to soften and then lowered to contact to contact the surface and be pulled against the mould by vacuum. **Pressure thermo-forming** - A thermoforming process in which air pressure is applied to form a heated sheet against the mould surface.

TERM	DEFINITION
Thermo-plastic	Capable of being repeatedly softened by heating and hardened by cooling through a temperature range characteristic of the plastics and, in the softened state, capable of being repeatedly shaped by flow into articles by moulding, extrusion or foaming.
Thermoset	A material that will undergo, or has undergone a chemical reaction by the action of heat, catalysis, ultraviolet light or other processes leading to a relatively infusible state. When cured, becomes insoluble in organic solvents.
Thermostat	An automatic device for regulating temperature.
Thermoweld	To weld together two or more surfaces of a homogenous film material by means of heat.
Thixotropy	A property of certain systems, including adhesives, whereby they become fluid upon agitation and more viscous upon subsequent rest.
Thread	**Continuos thread** - An uninterrupted screw form used to provide a means of engagement between two components, eg. threaded finish and a screw closure. **Depressed thread** - A minor reduction of the thread depth of a finish over a relatively small arc at the vertical seam of the finish, its purpose is to avoid slight fins at the vertical seam causing closure interference.
Tier	A layer of cases or packages on a pallet load.
Timber	**Timber failure** - The rupture of timber during the separation of the adhesive/substrate interface, used to evaluate the effectiveness of adhesive bonding by rating the total percentage area exhibiting timber failure after testing the bonded assembly. **Reconstituted timber** - Timber which has been re-formed by bonding particles of wood with a synthetic resin or other organic binder eg. hardwood, medium density fibreboard, plywood, flakeboard.
Time	**Application time** - The normal time between moistening the adhesive and the moment when it is applied to the container to be sealed. **Assembly time** - The time between the spreading of the adhesive on the substrate and the application of pressure, or heat, or both, to the assembly. For assemblies involving multiple layers or parts, the assembly time begins with the spreading of the adhesive on the first substrate.

TERM	DEFINITION
Time (Cont'd)	**Bonding time** - The time, which elapses between the joining of two materials by an adhesive to the stage where they cannot be separated without disruption of one of the surfaces of the adherents. **Closed assembly time** - The time between completion of assembly of the parts for bonding and the final application of pressure or heat, or both, to the assembly. **Closed time** - The time, which elapses between the application of a tape and deliberate disturbance of a test. **Curing time** - The time required to cure the applied material at specified temperature and pressure. **Drying time** - (a) The time required for a substance that has been applied in fluid or viscous form to dry sufficiently to be suable for its intended function. (b) The time during which an adhesive on a substrate or an assembly is allowed to dry with or without the application of heat, pressure or both. **Setting time** - The time required for an assembly to be subjected to heat or pressure, or both, in order to set the adhesive.
Tin plate	Thin sheet of steel covered with a thin layer of tin made by dipping the sheet in molten tin or by electrolysis.
Tin-plating	An application of tin to both surfaces of low carbon steel (tin plate base) to produce tinplate by electrolysis or the hot-dip process.
Tissue	Generic term for any type of lightweight paper. The term is generally restricted to paper having a grammage in the range 12-32/m²
Tongue	(a) Shape of material, which slips into a groove or slot. (b) An extension of the scored section of a key-open can to which the key is first attached before opening the can.
Tongue and slot	Type of joint, where one flap is in the form of a hooked tongue, which slides into the slot in the opposite flat when the container is erected.
Top	The upper or 'top' component of a built-up body type can. Usually flat and permanently secured to the body. **Topside** - The face of a sheet of paper or board opposite the wire side.
Torsion	Stress on a material caused by twisting.
Touret cylinder	A cylinder with two flasks and a hole through the axes to facilitate handling and emptying of the contents.

TERM	DEFINITION
Toxicity	The quality or degree of being toxic or poisonous.
Trade name	A name or term which is owned by registration or copyright and identifies the product or service of a particular company.
Trade package	The package used by manufacturers for commercial deliveries of the materiel, subject to the addition of the identification particulars detailed in the contract. Normal NATO designations are: (a) **Retail trade package** - That used for packaging commercial retail commodities. (b) **Bulk rate package** - That used for packaging bulk commercial commodities. (c) **Export trade package** - That used for the export of commercial commodities.
Transitional packaging	Package recognised as permissible prior to an effective date of a requirement, which may continue to be legally used until an established expiration date.
Translucent	Permitting the passage of light, but dispersing it to the extent that objects cannot be clearly seen
Transparent	Transmitting rays of light so that objects can be seen through the material.
Transverse	Being in a crosswise direction; at right angles to the machine direction
Tray	A shallow, open top container, made of fibreboard, wood pulp or plastics, usually used as interior support for products in a container.
Traypack	A corrugated fibreboard box with trays, for the packaging of fruit.
Tube	(a) A collapsible or flexible container used for packaging creams or pastes. (b) A length of tubing cut from either a spiral or a convolute winding machine, cut to size to form the body of a composite container. **Collapsible tube** - A cylinder of pliable metal or plastics which can be sealed in such a manner that its contents, although readily discharged in any desired quantity, are protected from contact with air or moisture during the whole period of use as a container. **One-shot tube** - A tube which empties its contents in one application.

TERM	DEFINITION
Tuck	The end portions of the top and bottom flaps of a folding paper box (carton) which are inserted inside the container to hold the end (top or bottom) flaps in place. Various types of cuts and shapes of tuck ends have been developed to hold the flaps, the commonest being a pair of notches at the fold which engage the side flaps and hold the end flaps in place. **Reverse tuck** - The tuck of a tuck-end carton in which the end flaps are extensions of the opposite panels. This type of design permits greater economy of the material from which the carton is die cut by providing less scrap. **Straight tuck** - The tuck of a tuck-end carton in which the end flap is an extension of the side panel
Twine	A stout thread made of two or more smaller threads, twisted together.
Two-phase system	The system inside an aerosol container consisting of a vapour phase (propellant) and a liquid phase (product).
Type test	The complete series of tests to be carried out on a single item or number of items (specimens) representative of the type of product, with the object of determining whether a particular manufacturer can be considered capable of producing goods meeting the standard.
Types of load	Type of load is determined by the exterior configuration of the item to be packed. The type of load falls into one of the following: (a) **Easy load** - Items of moderate density that contact all surfaces and fully support all interior faces of the container. (b) **Average load** - An item or group of items which can be modified or arranged to fully support all interior container surfaces by the use of partitions, die cuts, forms or other cushioning media. (c) **Difficult load** - Contents do not support the container, such as fragile articles, delicate instruments, articles of high density and small bulk items. Examples: wrenches, long bolts and rods which exert highly concentrated forces on the faces of the shipping containers; rivets, forgings and bulk hardware which are packed loosely and according to no definite pattern, and which apply force on faces of the shipping container; fragile articles and delicate instruments which require special protection; valves, fittings and machine parts which do not completely fill the container.

TERM	DEFINITION
Ullage	The space in a container not occupied by a product. It is the difference between capacity and nominal capacity of a container. It may be expressed as a percentage of the nominal capacity: Ullage = $\frac{\text{Capacity - Nominal capacity}}{\text{Nominal capacity}}$
Under-packaging	A condition where methods used to package an item are inadequate for the level of protection required.
Unit of issue	A standard or basic quantity, into which an item of supply is divided, issued or used.
Unit load	An assembly of a number of items or packages combined together as a single unitized load.
United Nations (UN) committee of experts on the transport of dangerous goods	A panel responsible for the development of recommendations dealing with the multimodule transport of dangerous goods.
Unitise	(a) To assemble a side, top or bottom of a container into a single unit by securing the members with nails, staples, tape or adhesive. (b) To prepare a unit load.
Unitised load	A type of unit load consisting of articles or containers secured together so as to be handled as an entity
Unit pack	The smallest marked package in which one supply item or several identical supply packed together are supplied as a complete and identifiable pack.
Unit size	In bar code, width of the narrow element (bar or space). This width is referred to as the "X" dimension.
Vacuum forming	(a) A forming process in which the plastic sheet is changed to a desired shape by causing it to flow by reducing the air pressure on one side of the sheet. (b) Method of sheet forming in which the plastic sheet is clamped in a stationary frame, heated and drawn down by a vacuum into a mould.
Vacuum filling	Filling of liquids into containers from which most of air has been removed by a partial vacuum, either prior to filling or simultaneously with filling, to prevent foaming or spillage due to entrapped air and to insure full volumetric pressure.
Vacuum packaging	The technique of packaging in containers from which substantially all air has been removed prior to sealing.

TERM	DEFINITION
Vacuumise	To remove air from a filled container prior to closing.
Vacuum seal	A seal that will maintain a vacuum indefinitely.
Valuable and attractive items	Items which are subject too special supply, custody, and accounting procedures.
Vapourmeter cup	A special container used in determining the moisture vapour transmission rate of packaging materials
Vapour degreasing	Solvent cleaning by bringing cold water in contact with hot vapours, usually ethylene trichloride (trichlorethylene).
Vapour hone	A type of rust removal cleaning process wherein the item is subjected to a high velocity stream of atomised water with an abrasive and suitable corrosion inhibitor.
Vapour pressure	The pressure exerted by a vapour at a given temperature. In connection with packaging usually refers to the partial pressure exerted by water vapour in an atmosphere at a given temperature.
Vapour transmission	The passage of vapour (usually water vapour) through a material. The properties of a packaging material permitting the passage of vapour.
Vehicle	A liquid which acts as a carrying medium for other substances. Examples: a drying oil as a vehicle for pigments in paints, printing inks, etc.
Veneer	(a) Thin sheets of wood produced on a rotary lathe or by slicing or sawing. (b) One of the sheets in a plywood construction.
Vent	(a) An outlet of any kind, commonly small, for the passage of some fluid, such as air or water, out of a confined space. (b) In an injection or transfer mould, a shallow channel or minute hole cut in the cavity to allow trapped air to escape as the material enters and to facilitate ejection of the moulded part from the cavity.
Venting seal	A seal that functions as a check-valve and will permit gases generated by the product to escape after predetermined pressure is reached.
Ventilation	Provisions for passage of fresh air through a container.
Vial	A term used loosely to describe a cylindrical, small capacity glass container.

TERM	DEFINITION
Vibration	(a) The forces set up through transmission of shocks (b) Oscillation occurring in a system which is defined by frequency (or frequencies and amplitude). The frequency may be expressed as cycles/second or Hertz (Hz); and amplitude in any convenient unit of length.
Viscometer	An instrument for measuring viscosity.
Viscosity	The property of a fluid to resist deformation or flow.
Viscosity controlling agent	A substance added to increase or decrease the viscosity of an adhesive without substantially changing the solids concentration.
Volatile	Easily passing from a liquid into a gaseous state. Subject to rapid evaporation. Having a high vapour pressure at room temperature.
Volume	An inverse measure of the conductivity of a resistivity material and is equal to the ratio of the potential gradient to the current density, where the potential gradient is measured in the direction of the current flow in the material. (In the metric system, volume resistivity of an electrical insulating material in ohm-cm is numerically equal to the volume resistance in ohms between opposite resistance in ohms between opposite faces of a 1cm cube of the material. Volume resistivity in the -cm).
Volatile corrosion inhibitor (VCI)	(a) A material, which slowly releases vapour that, inhibits corrosion within a package by neutralising the effects of moisture-laden air. (b) A material which evaporates or sublimes and then forms a thin corrosion resisting film on the surface of a part.
Vulcanisation	The chemical process by which the physical properties of rubber are changed, resulting in lower surface tackiness and increased tensile strength.
Warning symbol	Label or marking which recommends various precautionary measures to be taken when handling the package or item.
Water	**Water displacing fluid** - A liquid that has the ability to displace water from surfaces. It may or not also deposit a film, which has corrosion preventing liquid. **Water soluble oil** - A petroleum oil containing soap, which enables it to form a stable emulsion with water. Used as a coolant, lubricant, and rustproofing agent

TERM	DEFINITION
Waterproof	Impervious to the transmission or absorption of liquid water.
Watertight	That quality of a container or package by which it prevents the passage of liquid water either into or out of the package.
Water vapour-proof	(a) Not subject to damage by water vapour. (b) Resistant to the passage of water vapour, though not necessarily a complete barrier. (c) Ability of packaging (or material) to retard the passage of water vapour.
Water vapour-resistance	Measured ability to retard penetration and permeation by water vapour.
Water vapour transmission	The rate at which a material permits the passage of water vapour measured under specific conditions of test. Usually expressed as the mass of water vapour in grams passing through a square metre of material in 24 hours under specific conditions of test.
Weather resistance	Measured ability, using standard test methods, of a material to retain its original physical properties and appearance under prolonged exposure to weathering conditions.
Weathering	The process by which a material changes under varying climatic conditions.
Webbing	Formation of a lacy thread pattern during the application of adhesive; due to extension of adhesive particles.
Weld	A joint between two materials where the joining surfaces are rendered plastic by heat. **Cold weld** - The joint of a metal surfaces obtained by application of high pressure. **Weight** - Force exerted by a mass due to acceleration submitted; force measured by a scale.
Wet strength	A measure of the physical strength properties of paper when saturated with paper, expressed in terms of wet tensile strength, wet bursting strength, etc.
Wetting	Process by which a liquid comes into contact with a solid to form a solid-liquid interface.
Wetability	The ability of a surface to be wetted by specified liquids eg. water/alcohol solutions. Useful in predicting suitability to accept printing inks and coatings.

TERM	DEFINITION
Wetting agent	A substance which, when introduced into a liquid reduces the surface tension, thereby increasing the spreading, emulsifying, or foaming properties of the liquid.
Wrap	Piece of flexible material either precut or cut to length for manual or mechanical wrapping of the item to be packaged.
Wrapper	(a) A sheet of flexible material, such as, paper, foil, film or a laminate, used for wrapping purposes. (b) A paper covering for the lid, tray, base or the like of a set-up paper box or for similar applications.
Wrapping	(a) The process of enclosing an object, parcel or package in a sheet of material, either manually or mechanically. (b) The material used for wrapping. **Corrugated wrapping** - Corrugated paper or fibreboard, which may be either unlined or single, faced. **Shrink-wrapping** - A process of enclosing an article within a protective envelope of prestretched film and then shrinking the film tightly around the article by the application of heat. **Stretch-wrapping** - A process of enclosing an article with a protective coating of film which has been stretched during its application.
Yield	The ratio of the amount of material in a product to the amount of material used to produce it, expressed as a percentage. **Yield point** – That point beyond which the stresses in a material will cause a permanent deformation. **Yield value** - The stress (tensile, torsional or shear) at which a marked increase in deformation occurs without an increase in deformation occurs without an increase in load.
Young's modulus of elasticity	A term associated with tensile tests. It is the ratio of the amount of stress to the amount of strain (initial slope of a stress strain curve).

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Defence Plaza Melbourne
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AO 011
Revised Oct 2007

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