AS 2400.10—2006

Australian Standard™

Packaging

Part 10: Protection against shock and vibration (cushioning)

This Australian Standard was prepared by Committee PK-025, Packaging Code. It was approved on behalf of the Council of Standards Australia on 10 March 2006. This Standard was published on 28 March 2006.

The following are represented on Committee PK-025:

Australian Paints Manufacturer's Federation
Canmakers Institute of Australia
Printing Industries Association of Australia

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This Standard was issued in draft form for comment as DR 05424.

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Part 10: Protection against shock and vibration (cushioning)

Originally as AS 2400.10—1991.
Second edition 2006.

Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 7332 X

PREFACE

This Standard was prepared by Standards Australia Committee PK-025, Packaging Code to supersede, AS 2400.10—1991, *Packaging*, Part 10: *Protection against shock and vibration* (*cushioning*).

The objective of this edition is to revise the methods for protecting goods against vibration and shock.

This Standard is Part 10 of the AS 2400, *Packaging* series of Standards. The series comprises the following Parts:

Part 1: Glossary of packaging terms

Part 5: Temporary corrosion protection

Part 6: Paper and paperboard

Part 7: Timber boxes

Part 8: Textile bags, sacks and wrappings

Part 10: Protection against shock and vibration (cushioning) (this Standard)

Part 11: Cordage

Part 12: Adhesive closing and sealing tapes

Part 13: Tensional strapping

Part 14: Adhesives

Part 16: Flexible packaging

Part 18: Use of desiccants in packaging

Part 22: Closures

The term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

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FOREWORD

Every manufactured product has some degree of robustness, or resistance to mechanical damage. In many cases, however, the product is fragile; without additional protection, its inherent strength is not great enough for it to withstand the treatment that it will be exposed to during physical distribution.

Two operations that a product is likely to encounter in physical distribution are handling and transportation. In the handling environment, packages are commonly dropped or thrown, resulting in shock to the packaged product. The severity of the shock will vary, depending on such factors as product mass, size and the particular handling operation being used.

In transportation, packages are, in general, subjected to almost continuous vibration. These vibrations can be damaging where a condition arises that the product or package amplifies the inputs to levels that can be up to twenty times as severe. This phenomenon is called resonance. Because the 'bare' product can not usually withstand the rigours of the handling and transportation operations, packaging systems are used. These systems often incorporate cushioning materials to provide the required protection.

Ideally, a packaging system should be designed to provide only enough protection to make up the difference between the severity of the distribution environment and the robustness or fragility of the product. This relationship is described in general terms by the following equation:

$$\text{Environmental severity} = \text{Product robustness} + \text{Package performance}$$

If the right hand side of the equation is greater than the left, the product is over-packaged, resulting in wasted dollars. On the other hand, if the left hand side is greater than the right, the product is under-packaged, resulting in damage.

STANDARDS AUSTRALIA

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Packaging

Part 10: Protection against shock and vibration (cushioning)

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the protection of packaged goods against shock and vibration. It also describes the more commonly used materials and methods.

NOTE: For unusual or complicated types of protection, technical advice may be required from an appropriate supplier.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS		
1157	Method of testing materials for resistance to fungal growth	
1157.1	Method 1:	General principles of testing
2400	Packaging	
2400.1	Part 1:	Glossary of packaging terms
2400.18	Part 18:	Use of desiccants in packaging
2582	Complete, filled transport packages—Methods of test	
2582.3	Method 3:	Stacking test using a static load
2582.4	Method 4:	Vertical impact test by dropping
2582.5	Method 5:	Horizontal impact tests
2582.6	Method 6:	Vibration test at fixed low frequency

1.3 DEFINITIONS

For the purposes of this document, the definitions given in AS 2400.1 apply.

