

Australian/New Zealand Standard™

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**The storage and handling of mixed  
classes of dangerous goods in  
packages and intermediate bulk  
containers**

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This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee CH/9, Safe Handling of Chemicals. It was approved on behalf of the Council of Standards Australia on 10 July 1998 and on behalf of the Council of Standards New Zealand on 6 July 1998. It was published on 5 September 1998.

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Retail Traders Association of N.S.W.  
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### **The storage and handling of mixed classes of dangerous goods in packages and intermediate bulk containers**

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## PREFACE

This Standard was prepared by the Standards Australia/Standards New Zealand Committee CH/9, Safe Handling of Chemicals. Preparation of this Standard was commenced following a request from the chemicals industry that a series of Standards be prepared on the storage and handling of dangerous goods.

The purpose of this Standard is to promote the safety of persons and property where mixed classes of dangerous goods are stored and handled, by providing requirements and recommendations that are based on industry best practices.

This Standard deals with the storage and handling of mixed classes of dangerous goods of Classes 1.4S, 2 (as consumer commodities or aerosols of UN 1950), 3, 4.1, 4.3, 5, 6.1, 8 and 9, and to combustible liquids, where such goods are kept in packages or in intermediate bulk containers (IBCs) having a capacity of up to 1.5 m<sup>3</sup>.

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## FOREWORD

This Standard allows for the storage of different classes of dangerous goods in the same storage area without internal segregating walls.

To achieve storage conditions comparable in safety to those for individual storages for each class, relevant conditions from the various Australian Standards for individual classes of dangerous goods have been considered and combined with additional requirements. The conditions for mixed storage are intended to provide a similar level of safety as that which would be achieved by applying the relevant Australian Standard for each individual class.

### Which Standard should be used?

In most storage situations, several Standards may need to be considered:

- (a) The relevant Australian, New Zealand or joint Australian/New Zealand Standard for each individual class of dangerous goods to be stored.
- (b) This Standard.
- (c) Any special Australian, New Zealand or joint Australian/New Zealand Standards (such as AS 2507 and NZS 8409), which cover the storage and handling of dangerous goods within a particular industry.

The decision rests with the user but, once a Standard is selected, it needs to be applied fully. The selective use of parts of different Standards is not intended.

The use of the relevant Australian Standard for each individual class should always be considered first.

### Storage of Classes 2.1, 3, 4.1, 4.3 and 5

The storage of dangerous goods of Classes 2.1, 3, 4.1, 4.3 and 5 in quantities exceeding minor storage requires the whole store, including forklifts, to be fully 'flameproofed', which is a very expensive measure. Large separation distances to other buildings both on and off site and to the boundary are necessary. Internal segregation places limits on the use of available floor space.

As a 'rule of thumb', if the storage of such classes occupies—

- (a) <25% of the total storage floor area, a separate store, fire-resistant compartment or cabinet for the dangerous goods of Classes 2, 3, 4.1, 4.3 and 5 is probably more cost-effective.
- (b) 25–75% of the storage floor area, there is probably no clear-cut choice. The cost of building and forklift modifications, the use of segregation spaces and available safety separation distances will probably determine the outcome.
- (c) >75% of the storage floor area, the mixed storage is probably cost-effective.

### Features of this Standard

The main features of this Standard for the storage of mixed classes are outlined below.

*Prohibition of some types of dangerous goods* Under this Standard, the following dangerous goods are not allowed in the mixed class store.

- (a) Dangerous goods of Packing Group I in quantities greater than those specified in Table 2.1 and Clause 3.7 of this Standard, unless a suitable risk assessment has been carried out (see Clause 1.2.2(h)).
- (b) Certain classes of dangerous goods (including Classes 4.3 and 5.2), regardless of Packing Group (see Clause 1.2), in quantities exceeding minor quantities, or as allowed in Clause 3.7.
- (c) Class 5.1 dangerous goods in quantities exceeding 10 000 kg (see Clause 6.3.4).

If the storage of such dangerous goods is unavoidable, two options exist:

- (i) Limited quantities of these dangerous goods may be stored in fire-resistant cabinets (see Clause 5.8) which are regarded as separate from the surrounding storage.
- (ii) A separate storage complying with the individual Class standard may be used.

*Hazard assessment* A written hazard assessment needs to be completed. This should identify all applicable requirements clause by clause, and explain in detail how they will be complied with (see Clause 5.3.2).

Expert advice is required. Where such expertise is not available in-house, consideration should be given to obtaining external professional advice at the earliest planning stage (i.e. when selecting the most appropriate Australian Standard).

*Internal segregation* The hazard assessment needs to identify the compatibility of all dangerous goods to be stored. Incompatible goods and goods which react dangerously with each other need to be segregated in accordance with Clause 6.3. Segregation may also be required between dangerous and non-dangerous goods.

*Storage of non-dangerous goods* Goods that are not classified as dangerous goods may be stored in segregation spaces or elsewhere in the store if they do not increase the overall risk. Special segregation requirements apply to foodstuffs (see Clause 6.3).

*Management and housekeeping* These need to be of a consistently high standard at all times, in order to ensure safe storage and effective emergency management. Provisions for ongoing management and housekeeping need to be included in the hazard assessment.

*Dangerous goods in retail storage* Section 3 specifies requirements for retail stores and their distribution centres.

## STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

## Australian and New Zealand Standard

**The storage and handling of mixed classes of dangerous goods in packages and intermediate bulk containers**

## SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE** This Standard sets out requirements and recommendations for the safe storage and handling of dangerous goods (i.e. substances that are classified as dangerous goods in the UN *Recommendations on the transport of dangerous goods* and listed in the *Australian Dangerous Goods Code* (ADG Code)/NZS 5433, in packages and intermediate bulk containers (IBCs) of up to 1.5 m<sup>3</sup> capacity, where more than one class of dangerous goods are kept.

NOTE: An outline of the classes of dangerous goods is given in Appendix A.

**1.2 APPLICATION**

**1.2.1 Where this Standard applies** This Standard applies to—

- (a) the storage and handling of dangerous goods, in packages and IBCs, of Classes 3, 4.1, 4.3, 5, 6.1, 8 and 9;
- (b) the storage and handling of dangerous goods of Class 1.4S, where such goods are in consumer commodity package sizes and in their original packaging;
- (c) the storage and handling of dangerous goods of Class 2 when such goods are in consumer commodity package sizes (see Clause 1.4.12) or aerosols (UN 1950);
- (d) any combustible liquids (see Clause 1.4.9) that are stored with the dangerous goods;
- (e) packages and IBCs of dangerous goods that are in transit storage (see Clause 1.4.47); and
- (f) packaged dangerous goods of Packing Group I in the quantities as specified in Sections 2 and 3 of this Standard, or as determined by risk assessment (see Clause 1.2.2.(h)).

NOTE: Where dangerous goods of Class 1.4S are kept, relevant explosives Acts and regulations may also apply.

**1.2.2 Where this Standard does not apply** This Standard does not apply to—

- (a) the storage and handling of dangerous goods in domestic premises;
- (b) the storage and handling of dangerous goods in port areas;
- (c) the storage and handling of dangerous goods on farms, where such goods are not intended for resale;
- (d) the transport of dangerous goods, which is covered by other regulations, rules and codes, such as the ADG Code/NZS 5433;
- (e) the storage and handling of gases of Classes 2.1, 2.2 or 2.3, except as aerosols (UN 1950) or in consumer commodities;
- (f) the storage and handling of Class 5.2 dangerous goods (organic peroxides), in quantities greater than 'minor storage';
- (g) the storage and handling of Class 4.2 (spontaneously combustible), 6.2 (infectious) or Class 7 (radioactive) dangerous goods; or
- (h) the storage and handling of dangerous goods of Packing Group I, in quantities greater than those allowable as 'minor storage' (see also Clause 5.3.2), unless a suitable risk assessment has been conducted.



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