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INDUSTRIAL GAS CYLINDER IDENTIFICATION



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Australasian Steamship Owners Federation
Australian Chamber of Commerce
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AUSTRALIAN STANDARD

INDUSTRIAL GAS CYLINDER IDENTIFICATION

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PREFACE

This edition of this standard was prepared by the Association's Committee on Gas Cylinders, to supersede AS 1943—1984. It is one of three standards providing separate systems for the identification of refrigerant gas cylinders (AS 1942), industrial gas cylinders, and medical gas cylinders (AS 1944). The systems involve the legible marking of the cylinder with the name, or abbreviated symbol, or where applicable refrigerant number of the contained gas, and specified colour(s) for external surfaces.

It is recognized that the variety of gases and gas mixtures exceeds the practical limits of a system employing unique colours for each, and so where the gas or gas mixture is not otherwise provided for, the system is extended to specify colour identifications according to the hazard classification of the principal constituent. The extended system is not in conflict with colours previously specified. The system is also extended to provide for three colour bands.

Certain gases have both refrigerant and industrial applications, e.g. ammonia, carbon dioxide, sulphur dioxide, and could have been listed in this standard, or in AS 1942, or in both. Listing in both can result in different colour identification for one gas, depending on the application. With the exception of dichlorodifluoromethane (R12) (which is listed in both), the allocation of a gas to one or other standard is to some extent arbitrary. There will be instances where this allocation is inadequate and in such cases the major band colour given in AS 1942, or the colour given in AS 1942, or the colour given in AS 1943, will be generally appropriate.

Dichlorodifluoromethane is generally used as a refrigerant gas, but is also used as a constituent for certain industrial gas mixtures. For that reason it is listed in both standards.

Colours for gas cylinders have been specified by reference to BS 381C:1964, Colours for Specific Purposes, which was endorsed as AS K185. A later standard (BS 381C:1980) lists some referenced colours as obsolescent, and does not give individual cards for those colours. Therefore, while some colours are fully provided in BS 381C:1980, it will be necessary to refer to the 1964 edition (available for viewing at SAA Information Centres) for those not so provided.

AS 2700, Colour Standards for General Purposes, provides equivalent colours, but does not use the same colour names and codes for the equivalent colours. The names and codes of AS 2700 are expected to be adopted by the compressed gas industry in due course, but, because of the possible extreme consequences of wrong contents identification, the change from BS 381C to AS 2700 colour names and codes must be gradual. Therefore, BS 381C colours and codes are specified at this time with AS 2700 equivalents also shown.

The committee has decided that a clean hot-dip galvanized surface—

- (a) is not significantly inferior to a white surface, with respect to radiant heat intake; and
- (b) is an adequate substitute for white as a body colour, as the white body colour is not the major element compared with the band colours in the colour coding of refrigerant gas cylinders.

It is important for safety reasons that colours specified for gas cylinder contents identification not be used on a gas cylinder in any other context.

The committee was unable to provide a single identification for an eductor tube for liquid withdrawal of LP gas. Lack of resolution between the advocates of two methods, being the traditional blue circle around the cylinder valve and vertical stripes as specified for medical gas cylinders, caused both methods to be included.

The abbreviated formulas specified in the standard are in accordance with International Standard ISO 448, Gas Cylinders for Industrial Use—Marking for Identification of Content, but the marking requirements do not align. This standard specified colours and marking of name or abbreviated symbol whereas ISO 448 specifies both name and chemical molecular formulas, with certain exceptions, and does not specify colour.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

for

INDUSTRIAL GAS CYLINDER IDENTIFICATION

1 SCOPE. This standard specifies the markings and colour code to identify the contents of cylinders to be used in Australia in accordance with AS 2030.1, AS 2030.2, and AS 2030.4 for the storage and transport of compressed industrial gases. The cylinders are of water capacity exceeding 0.1 kg but not exceeding 500 kg. The markings also provide for identification of cylinders for liquid withdrawal fitted with eductor tubes.

This standard is not intended to apply to cylinders for portable breathing apparatus (underwater and non-underwater) or for portable fire extinguishers. For identification of those cylinders, reference should be made to the particular product or application standard.

NOTES:

1. The requirements of this standard in no way displace any Statutory Authority requirements to comply with AS 1216, Part 1.
2. Identification of refrigerant gas cylinders is specified in AS 1942, and of medical gas cylinders in AS 1944.

2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1216	Classification, Hazard Identification and Information Systems for Dangerous Goods Part 1—Classification and Class Labels for Dangerous Goods
AS 1942	Refrigerant Gas Cylinder Identification
AS 1944	Medical Gas Cylinder Identification
AS 2030.1	SAA Gas Cylinders Code, Part 1—Cylinders for Compressed Gases Other than Acetylene
AS 2030.2	SAA Gas Cylinders Code, Part 2—Cylinders for Compressed Acetylene
AS 2030.4	SAA Gas Cylinders Code, Part 4—Welded Cylinders—Insulated
AS 2700	Colour Standards for General Purposes
AS K185	Colours for Specific Purposes*
BS 381C:1964	Colours for Specific Purposes*

3 DEFINITIONS. For the purpose of this standard, the definitions given in AS 2030.1, and the following definition apply:

Industrial gas—a commercially pure gas or gas mixture in a cylinder for use other than medical, breathing, refrigerating, or firefighting purposes, but excluding LP gas in a cylinder of 12 kg water capacity or less.

NOTE: Certain gases have uses as industrial gases and as refrigerant gases. Refer to the Preface for guidance where doubt exists.

4 IDENTIFICATION.

4.1 General. The contents of a cylinder shall be identified by marks in accordance with Clause 4.2 and colour(s) in accordance with Clause 4.3. A cylinder fitted with an eductor tube for liquid withdrawal shall be identified in accordance with Clause 4.4. The size and location of marks shall be in accordance with Clause 4.5.

4.2 Marks.

4.2.1 Basic marks. The cylinder surface shall be legibly marked by labelling (which cannot be readily detached) or stencilling to show—

- (a) the words 'COMPRESSED' and 'KEEP CYLINDER COOL'; and
- (b) the contents, as given by—
 - (i) name(s) of the gas(es) as listed in Table 1; or
 - (ii) abbreviated symbol(s) as listed in Table 1.

NOTE: Where Table 1 does not list the gas(es), refer to AS 2030.1.

4.2.2 Special condition marks. Where the contents of the cylinder has a special condition or the constituents are in special or laboratory proportions such as in multicomponent gas mixtures, the cylinder shall be marked in accordance with one of the following:

- (a) By a label (which cannot be readily detached) or stencilling, to show the special condition and/or special or analysed proportions, on the cylinder surface.
- (b) By a label indicating the contents is a special gas mixture and referring to a laboratory or other report, which is attached to the cylinder.

The major constituent or balance gas need not have the percentage marked and should be shown after all other constituents as 'IN (name of balance gas)' or '..... (name of balance gas) BALANCE'. The minor constituents should be shown in descending order of percentage of the total mixture, the greatest percentage first, and the percentage of each should immediately precede the name of the component.

Examples:

- (a) 10 percent Hydrogen in Nitrogen,
or
10 percent Hydrogen, Bal(ance) Nitrogen
- (b) 20 percent Oxygen, 5 percent Carbon dioxide in Nitrogen.

* These standards are obsolete—see footnote to Table 2.