



TECHNICAL INFORMATION SHEET 6

GAS CYLINDER IDENTIFICATION LABEL AND COLOUR CODE REQUIREMENTS

Background

Each individual gas cylinder has to have a label which identifies its contents, it also provides basic safety information on the hazard(s) associated with the product. The label is the primary method of identifying the contents. The label will contain mandatory information required under legislation, such as the *Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (1)* and the *Classification Labelling and Packaging Regulations (3)*. It is the responsibility of the person filling the gas cylinder to affix a label.

EIGA document 169 (11) gives further guidance on the classification and labelling of gases.

There are additional labelling requirements specified within the EC Medical Directives [2001/83] (4) for medical gas cylinders that are covered by a Marketing Authorisation.

The colours applied to cylinders are not mandatory, but where a colour code is applied it is either related to a specific gas or it will identify the properties of a gas. The gases industry has harmonised colours across Europe in-line with BS EN 1089-3 (7), *Transportable Gas Cylinders. Gas cylinder identification (excluding LPG). Colour Coding*.

The colours used for medical gases are harmonised and are consistent with ISO 32 (5), *Gas cylinders for medical use. Marking for identification of content*.

Labels

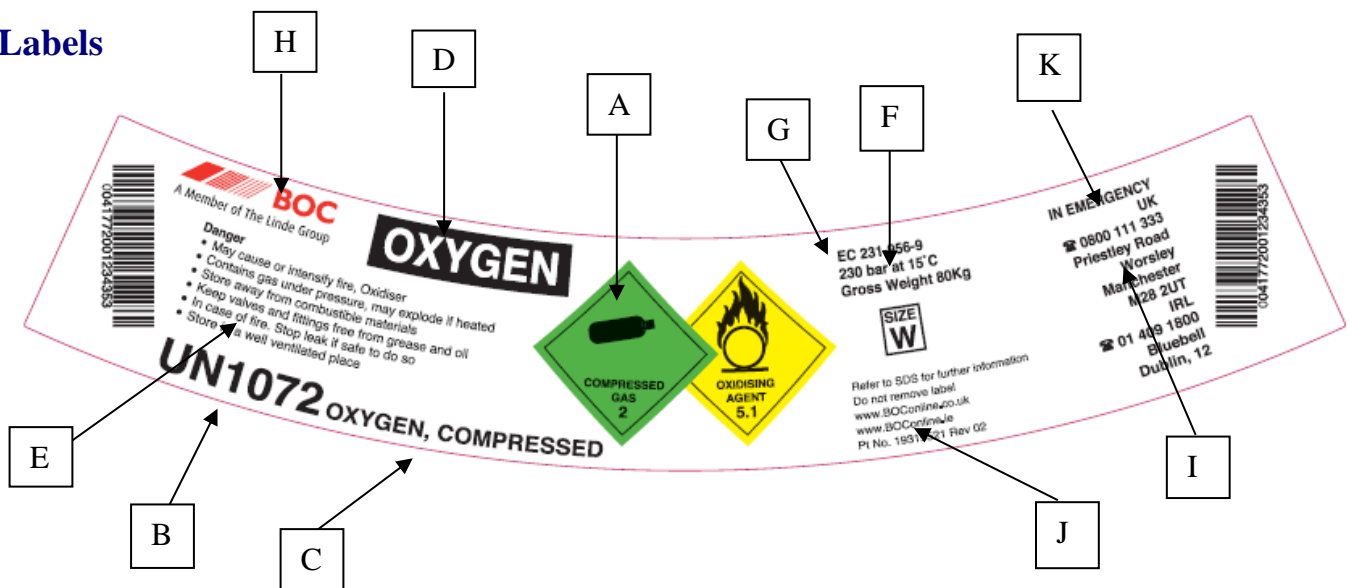


Figure 1: Example of a gas cylinder label

Labels for gas cylinders are allowed to be reduced in size and shape to the dimensions specified in BS EN ISO 7225 (6), *Gas cylinders – Precautionary labels*, for display on the shoulder section.

The following information is required on a label:

- A A diamond hazard label, displaying the primary hazard with additional hazard labels displaying any subsidiary hazards. These labels will display the dangerous goods classification number.

NOTE: Diamond hazard labels can be overlapped when they are on a cylinder shoulder label and have been reduced in size.

- B The UN number, preceded by the letters UN.
- C The proper shipping name.
- D Product name (may be omitted if the proper shipping name is identical).
- E Signal word, hazard and precautionary statements.
- F Package size and pressure.
- G EC number, if applicable.
- H Company name.
- I Address of the gas company.
- J Additional company information.
- K Contact telephone number.

Colour codes

Colour coding is applied to the shoulder, or curved part, at the top of the cylinder. Some gases have been assigned a specific colour but where a gas does not have a specific colour, the properties of the gas are indicated. Two concentric bands may be used to show where a gas has more than one property or, alternatively, the two colours may be painted in quarters around the shoulder. Refer to Table 1. In the case of gas mixtures there is no specific guidance in the standard, and different gas suppliers may use their own preferred system.

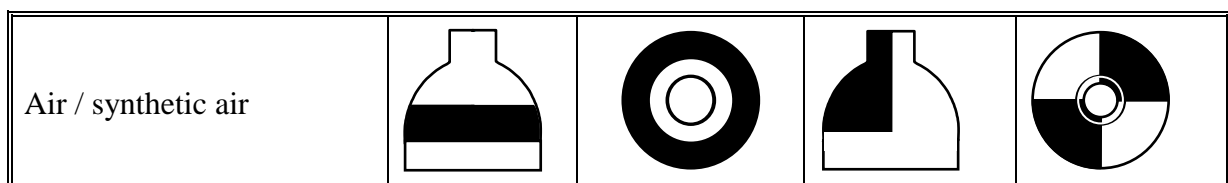


Table 1: Examples of bands and quadrants

For medical gases, where one of the bands signifies oxygen, this band (white) should be at the top to prevent confusion with the cylinder body.

Unless specifically identified, the properties and colours are in increasing order of hazard:

Inert:	Bright green
Oxidising:	Light blue
Flammable:	Red
Toxic:	Yellow

- (i) Colour coding can be applied to all gas cylinders.
- (ii) The use of the stencilled letter 'N', which is used to show compliance with the colour requirements specified in BS EN 1089-3 (7), is not necessary in the UK.
- (iii) Apart from medical gases, acetylene and hydrogen gas cylinders, the colour coding applies only to the cylinder shoulder.
- For medical gas cylinders the body is to be coloured white (RAL 9010). Refer to BCGA TIS 20 (10), *Medical gas cylinders. BCGA policy statement on colour coding*, for the BCGA policy on the colour coding of medical gas cylinders.
 - For acetylene cylinders refer to the additional information at Table 3.
 - For hydrogen cylinders it has been custom and practice in the UK to colour the body and shoulder red (RAL 3000). BCGA supports the continuation of this policy.
- (iv) The bodies of all other cylinders shall not be coloured white (medical cylinders only) or maroon (RAL 3007 or 3009 - acetylene cylinders only), but may be coloured to a scheme selected by the gas company / owner provided that it does not conflict with the colour on the shoulder.
- (v) Colour coding of cylinders in bundles / packs is not a requirement of BS EN 1089-3 (7).

For bundles used for diving applications offshore the colour coding system published by the International Marine Contractors' Association (IMCA), shall be complied with. The relevant document is IMCA D043 (9) which makes recommendations on the colour coding and marking of bundle frames.

(vi) There is no requirement in BS EN 1089-3 (7) to colour code the cylinder valve guard or protection cap. If they are coloured then the colours used should align with the designated shoulder colour. If an alternative colour is used it should not conflict with the colour on the shoulder.

NOTE: RAL numbers used in this document refer to an internationally recognized colour matching system detailed in the register RAL 840 HR, obtainable from:

RAL gGmbH
Siegburger Strasse 39
D-53757 Sankt Augustin
Germany
www.ral-farben.de

The colours shown in the following tables are for illustrative purposes only.

Tables 2 to 6 provide a visual guide to the colour schemes.





GAS TYPE		COLOUR	
Inert			Bright green - RAL 6018
Note 1			
Oxidising			Light blue - RAL 5012
Flammable			Red - RAL 3000
Toxic and / or corrosive			Yellow - RAL 1018

Table 2: Colour classification by hazard property

NOTE 1: Inert is considered to be a non-toxic and / or non-corrosive, non-flammable and non-oxidizing gas with an oxidising potential of less than 23.5 %. However, for medical gases, inert usually means having less than 20.0 % oxygen within the medical gas mixture.




GAS TYPE		COLOUR	
Acetylene	C ₂ H ₂		Black Red - RAL 3007 (Body & shoulder)
Note 2			
Oxygen	O ₂		White - RAL 9010
Nitrous oxide	N ₂ O		Blue - RAL 5010

Table 3: Specific gases

NOTE 2: In the UK, *The Acetylene Safety (England and Wales and Scotland) Regulations (2)* require that the body and shoulder of acetylene cylinders are painted RAL 3007. Attention is drawn to the fact that acetylene cylinders originating in other European countries may be painted with RAL 3009, Oxide Red, the designated colour for acetylene in BS EN 1089-3 (7).





GAS TYPE		COLOUR	
Argon	Ar		Dark green - RAL 6001
Nitrogen	N ₂		Black - RAL 9005
Carbon dioxide	CO ₂		Grey - RAL 7037
Helium	He		Brown - RAL 8008

Table 4: Inert gases for medical and industrial applications








GAS TYPE		COLOUR	
Air or synthetic air O ₂ ≥ 20 % but ≤ 23.5 % Note 3			White - RAL 9010 Black - RAL 9005
Helium / oxygen	He / O ₂		White - RAL 9010 Brown - RAL 8008
Oxygen / carbon dioxide	O ₂ / CO ₂		White - RAL 9010 Grey - RAL 7037
Oxygen / nitrogen O ₂ < 20 %	O ₂ / N ₂		Bright green - RAL 6018
Oxygen / nitrogen O ₂ > 23.5 %	O ₂ / N ₂		Light blue - RAL 5012
Oxygen / nitrous oxide	O ₂ / N ₂ O		White - RAL 9010 Blue - RAL 5010
Nitric Oxide / Nitrogen NO < 1000 ppm (V/V)	NO / N		Turkish blue - RAL 5018

Table 5: Gas mixtures for medical or inhalation purposes

NOTE 3: The European Pharmacopoeia monograph for synthetic air (No. 1684) specifies the oxygen content to be 95 % to 105 % of the nominal value which is between 21 % and 22.5 % oxygen.


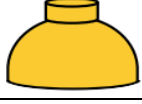
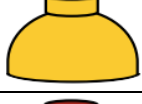


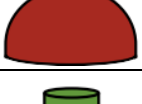


GAS TYPE		COLOUR	
Air or synthetic air $O_2 \leq 23.5 \%$			Bright green - RAL 6018
Ammonia	NH_3		Yellow - RAL 1018
Chlorine	Cl_2		Yellow - RAL 1018
Hydrogen	H_2		Red - RAL 3000
Krypton	Kr		Bright green - RAL 6018
Methane	CH_4		Red - RAL 3000
Argon / carbon dioxide	Ar / CO_2		Bright green - RAL 6018
Nitrogen / carbon dioxide	N_2 / CO_2		Bright green - RAL 6018

Table 6: Examples of some industrial gases and gas mixtures

Liquefied gases

Some cylinders which contain a liquefied gas are fitted internally with a dip tube (sometimes referred to as a siphon tube or dip pipe). A dip tube transfers liquid from the bottom of the cylinder up to the outlet valve. These cylinders may be identified by a white line (longitudinal stripe) on the side of the cylinder, and / or an annotated ‘indicator’ ring under the valve, for example with “DP” or “Dip Tube” embossed into it.



Figure 2: Example of a liquefied gas cylinder fitted with a dip tube

Cylinder test rings

The use of a cylinder test ring(s) is not mandatory but it provides a ready indication of the next periodic inspection and test date of a gas cylinder. The cylinder test ring(s) is usually fitted during the inspection and test. The test rings, consist of one or more plastic tabs, located between the cylinder and the valve. Rings are colour coded and shaped to specifically indicate the year when the next periodic inspection and test is due. The ring(s) may also give an indication of the month of the next due test. Only cylinder rings that are unbroken and intact are valid.

The sequence of colour and shape of the cylinder test rings is repeated on an 18-year cycle, hence 2031 is a repeat of 2013. Table 7 provides a guide to the colour and shape of cylinder test rings.

NOTES:

- 1) Standards such as BS EN 1968 (8), *Transportable gas cylinders. Periodic inspection and testing of seamless steel gas cylinders*, permit other methods of identification, for example, labels.
- 2) Some companies may use the test ring philosophy for other time-sensitive inspections of pressure equipment, such as relief valves.


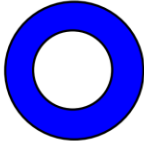
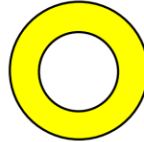


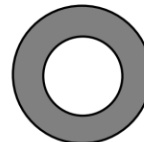
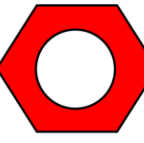
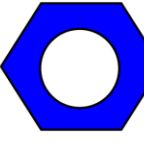
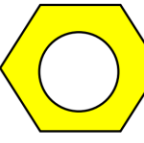



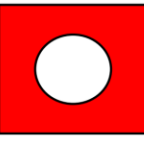
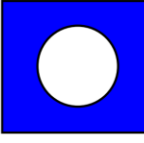
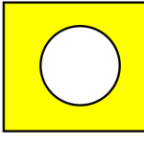
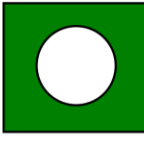

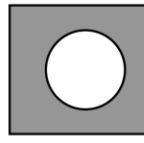

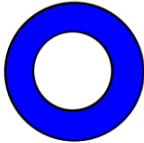
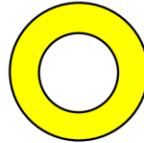


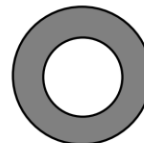
					
2013	2014	2015	2016	2017	2018
					
2019	2020	2021	2022	2023	2024
					
2025	2026	2027	2028	2029	2030
					
2031	2032	2033	2034	2035	2036

Table 7: Cylinder test rings

References

1. SI 2009 No. 1348 The Carriage of Dangerous Goods and use of Transportable Pressure Equipment Regulations 2009 (as amended).
2. SI 2014 No. 1639 The Acetylene Safety (England and Wales and Scotland) Regulations 2014.
3. EC No. 1272/2008 Classification, labelling and packaging of substances and mixtures.
4. EC No. 2001/83 Community code relating to medicinal products for human use.
5. ISO 32 Gas cylinders for medical use - Marking for identification of content.
6. BS EN ISO 7225 Gas cylinders – Precautionary labels.
7. BS EN 1089-3 Transportable gas cylinders. Part 3 – Gas cylinder identification (excluding LPG). Colour Coding.
8. BS EN 1968 Transportable gas cylinders. Periodic inspection and testing of seamless steel gas cylinders.
9. IMCA D 043 Marking and colour coding of gas cylinders, quads and banks for diving applications.
10. BCGA TIS 20 Medical gas cylinders. BCGA policy statement on colour coding.
11. EIGA Document 169 Classification, and labelling guide in accordance with EC Regulation 1272/2008 (CLP Regulation).

For more information

UK Legislation	www.legislation.gov.uk
British Standards Institution (BSI)	www.bsigroup.co.uk
International Organization for Standardization (ISO)	www.iso.org
European Industrial Gases Association (EIGA)	www.eiga.eu
British Compressed Gases Association (BCGA)	www.bcgaco.uk
International Marine Contractors Association (IMCA)	www.imca-int.com

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