



## Technical Information Sheet 6

Revision 2: 2012

### Cylinder Identification. Colour Coding and Labelling Requirements.

Since the introduction of BS EN 1089-3: *Transportable Gas Cylinders – Gas cylinder identification (excluding LPG). Colour Coding.* (6) in 1997 the colours used on gas cylinders, indicating the hazard of the product, have been harmonised within the European Union. The latest version of the standard was published in 2011. The colours used for medical gases are harmonised and are consistent with ISO 32 *Gas cylinders for medical use - Marking for identification of content.* (4).



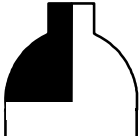

The purpose of this leaflet is to explain the colours used on gas cylinders and to give some explanation as to the content of a cylinder label. The cylinder label should always be used as the primary means of identifying the contents of gas cylinders.

BS EN 1089-3 (6) is an optional standard, however its use is recommended and the European Gases Association (EIGA) members use EN 1089-3 (6) to arrive at a harmonised colour coding system for cylinders.

The colour code has been introduced progressively as new cylinders are purchased or re-tested by the gas companies.

Colour coding is applied to the shoulder, or curved part, at the top of the cylinder and is used to identify the properties of the gas in the cylinder. A number of gases have been assigned a specific colour and these are shown within the tables in this document. 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. See 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**

|                            |   |   |  |   |
|----------------------------|---|---|--|---|
| <b>Air / Synthetic Air</b> |  |  |  |  |
|----------------------------|---|---|--|---|

NOTE: 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**

**Important points:**

- (i) The colour coding applies to industrial and medical cylinders.
- (ii) The use of the stencilled letter “N” specified in BS EN 1089-3 (6) is not necessary in the UK.

NOTE: The letter “N” is used to show compliance with the colour requirements of BS EN 1089-3 (6).

- (iii) Apart from medical gas cylinders and acetylene gas cylinders, the colour coding applies only to the cylinder shoulder.
- (iv) For acetylene cylinders see the additional information at Table 2.
- (v) For medical gas cylinders the body is to be coloured white (RAL 9010). BCGA members are in the process of converting existing cylinders with a planned completion date of 2025. Refer to BCGA TIS 20 (10) for the BCGA policy statement on the colour coding of medical gas cylinders.
- (vi) The bodies of all other cylinders shall not be coloured white, 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.
- (vii) Colour coding of cylinders in bundles / packs is not a requirement of BS EN 1089-3 (6).
- (viii) 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 (8), and makes recommendations on the colour coding and marking of bundle frames.
- (ix) There is no requirement in BS EN 1089-3 (6) 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.
- (x) It has been custom and practice in the UK to colour the body and shoulder of hydrogen cylinders red (RAL 3000). BCGA supports the continuation of this policy.

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](http://www.ral-farben.de)




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

**Table 2 - Colour classification by hazard property**

| <b>GAS TYPE</b>          | <b>COLOUR</b>   |                       |
|--------------------------|---|-----------------------|
| Inert                    |    | Bright green RAL 6018 |
| Oxidising                |  | Light blue RAL 5012   |
| Flammable                |  | Red RAL 3000          |
| Toxic and / or Corrosive |  | Yellow RAL 1018       |

NOTE: 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.





**Table 3 - Specific gases**

| GAS TYPE                     |                               | COLOUR  |  |
|------------------------------|-------------------------------|---|--|
| Acetylene<br>See Notes 1 & 2 | C <sub>2</sub> H <sub>2</sub> |  | Maroon colour 541 in BS 381C (3) or RAL 3007, Black Red. (Body & shoulder) |
| Oxygen                       | O <sub>2</sub>                |  | White RAL 9010   |
| Nitrous oxide                | N <sub>2</sub> O              |  | Blue RAL 5010  |








**NOTES:**

1. The colour given in BS EN 1089-3 (6) is RAL 3009, Oxide Red, which is closer in colour to a brick red.
2. In the UK it is a legal requirement to paint the body and shoulder of acetylene cylinders maroon. It is recommended that UK acetylene cylinders are painted maroon as specified in BS 381C (7), colour number 541 or to the closest equivalent RAL number, which is RAL 3007 Black Red. Attention is drawn to the fact that cylinders originating in other European countries may be encountered, which are painted with RAL 3009, Oxide Red. Additional detail on the identification of acetylene cylinders is shown in BCGA L6, *Cylinders in fires* (9).

**Table 4 - Inert gases for medical and industrial applications**








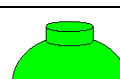
| GAS TYPE       |                 | COLOUR  |                     |
|----------------|-----------------|---|---------------------|
| Argon          | Ar              |  | Dark green RAL 6001 |
| Nitrogen       | N <sub>2</sub>  |  | Black RAL 9005      |
| Carbon dioxide | CO <sub>2</sub> |  | Grey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

**Table 5 - Gas mixtures for medical or inhalation purposes**

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

NOTE: 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.

**Table 6 - Examples of some industrial gases and gas mixtures**

| GAS TYPE  |                                  | COLOUR  |                       |
|---|----------------------------------|---|-----------------------|
| Air or synthetic air<br>O <sub>2</sub> ≤ 23.5 % |                                  |    | Bright green RAL 6018 |
| Ammonia   | NH <sub>3</sub>                  |    | Yellow RAL 1018       |
| Chlorine  | Cl <sub>2</sub>                  |    | Yellow RAL 1018       |
| Hydrogen  | H <sub>2</sub>                   |    | Red RAL 3000          |
| Krypton   | Kr                               |    | Bright green RAL 6018 |
| Methane   | CH <sub>4</sub>                  |  | Red RAL 3000          |
| Argon / carbon dioxide                          | Ar / CO <sub>2</sub>             |  | Bright green RAL 6018 |
| Nitrogen / carbon dioxide                       | N <sub>2</sub> / CO <sub>2</sub> |  | Bright green RAL 6018 |

## LABELLING INFORMATION

All gas cylinders are required to be labelled to indicate the contents of the cylinder, and include text that is required to comply with the Classification, Labelling and Packaging Regulations (2), as well as the requirements of the transport regulations, including the The Carriage of Dangerous Goods and use of Transportable Pressure Equipment Regulations (1). Figure 1 is an example of a typical label for a pure product, with an explanation as to the various items that are on the label. It must always be remembered that the label is the primary means of identifying the contents of the cylinder. The colour of the cylinder is only a guide.

It should be noted that there are additional labelling requirements specified within the EC Medical Directives (2001/83) (3) for medical gas cylinders covered by a Marketing Authorisation.

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

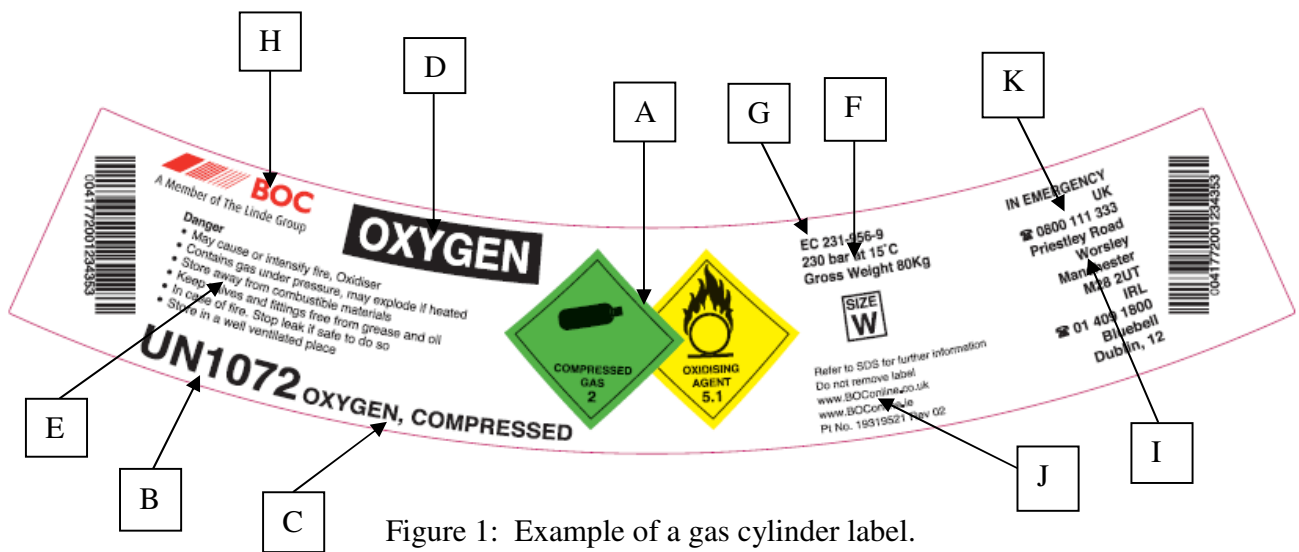


Figure 1: Example of a gas cylinder label.

Labels for gas cylinders are allowed to be reduced in size and shape to the dimensions specified in BS EN ISO 7225, *Gas cylinders – Precautionary labels (5)*, 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.
- 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.

## References:

1. SI 2009 No. 1348 The Carriage of Dangerous Goods and use of Transportable Pressure Equipment Regulations 2009 (as amended).
2. EC No. 1272/2008 Classification, labelling and packaging of substances and mixtures.
3. EC No. 2001/83 Community code relating to medicinal products for human use.
4. ISO 32 Gas cylinders for medical use - Marking for identification of content.
5. BS EN ISO 7225 Gas cylinders – Precautionary labels.
6. BS EN 1089-3 Transportable gas cylinders. Part 3 – Gas cylinder identification (excluding LPG). Colour Coding.
7. BS 381C Specification for colours for identification, coding and special purposes.
8. IMCA D 043 Marking and colour coding of gas cylinders, quads and banks for diving applications.
9. BCGA L 06 Cylinders in fires.
10. BCGA TIS 20 Medical gas cylinders. BCGA policy statement on colour coding.
11. EIGA IGC Classification, and labelling guide in accordance with EC Regulation Document 169 1272/2008 (CLP Regulation).

## Further information can be obtained from:

|  |  |
|--|--|
| UK Legislation                                       | <a href="http://www.legislation.gov.uk">www.legislation.gov.uk</a> |
| British Standards Institution (BSI)                  | <a href="http://www.bsigroup.co.uk">www.bsigroup.co.uk</a>         |
| International Organization for Standardization (ISO) | <a href="http://www.iso.org">www.iso.org</a>                       |
| European Industrial Gases Association (EIGA)         | <a href="http://www.eiga.eu">www.eiga.eu</a>                       |
| British Compressed Gases Association (BCGA)          | <a href="http://www.bcgaco.uk">www.bcgaco.uk</a>                   |
| International Marine Contractors Association (IMCA)  | <a href="http://www.imca-int.com">www.imca-int.com</a>             |

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