BRITISH STANDARD

BS EN
13792:2002

Colour coding of taps and valves for use in laboratories

The European Standard EN 13792:2002 has the status of a British Standard

ICS 01.070; 71.040.10

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This British Standard, having been prepared under the direction of the Materials and Chemicals Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 8 October 2002

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13792

September 2002

ICS 01.070; 71.040.10

English version

Colour coding of taps and valves for use in laboratories

Code de couleur des robinets et vannes utilisés dans les laboratoires

Farbige Kennzeichnung von Laborarmaturen

This European Standard was approved by CEN on 1 August 2002.

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Foreword

This document EN 13792:2002 has been prepared by Technical Committee CEN/TC 332 "Laboratory equipment", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2003, and conflicting national standards shall be withdrawn at the latest by March 2003.

Annex A is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies colour codes and nomenclature for liquids, gases and vacuum and the application of these codes and nomenclature on or in the vicinity of laboratory service controls.

This European Standard does not apply to medical or healthcare facilities using medical gases from a medical supply system conforming to EN 737.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

IUPAC *Nomenclature of Inorganic Chemistry, Recommendations 1990.*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1
operating device
means of actuating the operating or controlling mechanism of a service outlet

3.2
remote service outlet
outlet where the operating device (e.g. handwheel) of the valve is located separately from the service outlet

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4 Coding

4.1 General

The visible area of the operating devices shall be divided into three zones which, starting from the outside and working inwards, are designated zones 1, 2 and 3.

Zones 2 and 3 shall be circular. The diameter of zone 3 shall be at least 7 mm.

NOTE The ratio of the diameters of zones 2 and 3 should be 2:1.

The area of zone 1 shall be at least as large as that of zone 2.

There shall be a coding on remote outlets that corresponds to the coding on the operating device.

An example depiction of the zones is given in Figure 1.

4.2 Colour codes

4.2.1 General

The colours used should be as set out in Table 1.

Table 1 — Recommended colours to be used[1)]

Colour	RAL number
Black	9005
Blue	5012
Green	6001
Grey	7001
Red	3000
White	9010
Yellow	1021

The durability of the colours shall withstand the likely effects encountered during normal use.

4.2.2 Colour codes for zone 1

The colour codes for zone 1 shall be as follows:

1) Colour numbers and designations are obtainable from: RAL, Information Service, Siegburger Strasse 39, D-53757 Sankt Augustin, Germany.

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Green - Water

Yellow - Flammable gaseous hydrocarbons

Red - Other flammable gases and gas mixtures

Blue - Non-flammable gases, including combustion-enhancing gases

Black - Toxic gases

Grey - Vacuum

White - Others

4.2.3 Colour codes for zones 2 and 3

The colour codes for zones 2 and 3 shall be as set out in Table 2.

An abbreviation or description for the fluid may be affixed in the immediate proximity of the operating device or on it.

Any inscription(s) shall be in accordance with recognized chemical abbreviations of IUPAC, where these are available. If abbreviations include figures (digits), these may be subscript, superscript or aligned with the lettering. The digits may be smaller than the letters.

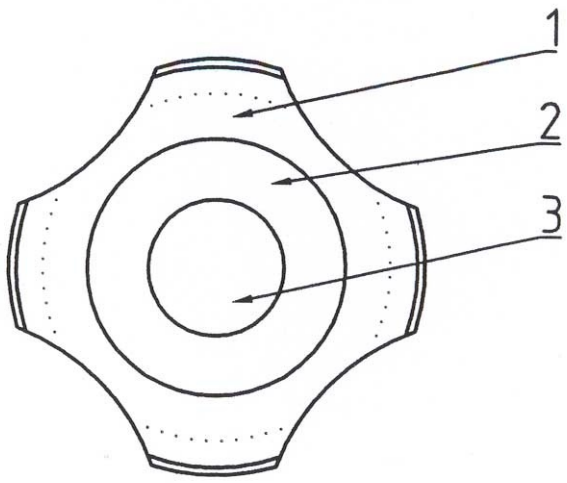

Figure 1 — Example depiction of zones 1, 2 and 3

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Table 2 — Colour codes[2)]

Fluid	Coding colour			
	Abbreviation or formula	Zone 1	Zone 2	Zone 3
Types of water				
Cooling tower/sprinkling water	WCS	Green	Green	Yellow
Potable water, hot	WPH	Green	Green	Red
Potable water, cold	WPC	Green	Green	Blue
Spring water	WSP	Green	Yellow	Yellow
Non-potable water, hot	WNH	Green	Yellow	Red
Non-potable water, cold	WNC	Green	Yellow	Blue
Steam	WST	Green	Red	Red
Condensate	WCO	Green	Red	Blue
Super-clean water, hot	WCH	Green	Red	White
Super-clean water, cold	WCC	Green	Blue	White
Coolant water return	WCR	Green	Blue	Red
Coolant water feed	WCF	Green	Blue	Blue
Surface water, hot	WSH	Green	Black	Red
Surface water, cold	WSC	Green	Black	Blue
Deionised water, hot	WDH	Green	Grey	Red
Deionised water, cold	WDC	Green	Grey	Blue
River water, hot	WRH	Green	White	Red
River water, cold	WRC	Green	White	Blue
Distilled water	WDI	Green	White	White
Flammable gaseous hydrocarbons				
Natural gas	G	Yellow	Yellow	Yellow
Propane/butane (liquefied gases)	LPG	Yellow	Red	Yellow
Methane	CH_4	Yellow	Blue	Yellow
Propane	C_3H_8	Yellow	Blue	Red
Butane	C_4H_{10}	Yellow	Blue	Blue
Ethene	C_2H_4	Yellow	Black	Green
Propene	C_3H_6	Yellow	Black	Red
Butene	C_4H_8	Yellow	Black	Blue
Acetylene	C_2H_2	Yellow	White	Green
Other combustible gases, gas mixtures				
Argon/methane	Ar/CH_4	Red	Yellow	Grey
Hydrogen/nitrogen	H_2/N_2	Red	Red	Green
Hydrogen	H_2	Red	Red	Red
Silane	SiH_4	Red	Red	Black
Hydrogen/helium	H_2/He	Red	Red	Grey
Deuterium	D_2	Red	Red	White

[2] It is essential to note that the colour coding in Table 2 for certain gases bears no relation whatsoever to the colour coding for medical gases used in healthcare facilities (see Scope).

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Table 2 *(continued)*

Fluid	Coding colour			
	Abbreviation or formula	Zone 1	Zone 2	Zone 3
Non-flammable gases, including combustion-enhancing gases				
Nitrogen	N_2	Blue	Green	Green
Dinitrogen monoxide	N_2O	Blue	Green	Blue
Air, synth. 80/20	SA	Blue	Blue	Green
Compressed air	CA	Blue	Blue	Yellow
Oxygen	O_2	Blue	Blue	Blue
Carbon dioxide	CO_2	Blue	Blue	Black
Regulated air	RA	Blue	Blue	Grey
Breathing air	BA	Blue	Blue	White
Carbogen ($CO_2 + O_2$)	CB	Blue	Black	Blue
Krypton	Kr	Blue	Grey	Yellow
Xenon	Xe	Blue	Grey	Red
Neon	Ne	Blue	Grey	Black
Argon	Ar	Blue	Grey	Grey
Helium	He	Blue	Grey	White
Toxic gases				
Ammonia	NH_3	Black	Green	Red
Nitrogen dioxide	NO_2	Black	Green	Blue
Nitrogen monoxide	NO	Black	Green	Black
Hydrogen sulphide	H_2S	Black	Red	Yellow
Arsine	AsH_3	Black	Red	Black
Phosphine	PH_3	Black	Red	Grey
Hydrogen chloride	HCl	Black	Red	White
Sulphur dioxide	SO_2	Black	Blue	Yellow
Carbon monoxide	CO	Black	Blue	Black
Phosgene	$COCl_2$	Black	Black	White
Chlorine	Cl_2	Black	White	White
Vacuum				
Low vacuum (10^5 to 100 Pa, or 1000 to 1 mbar)	V	Grey	Grey	Black
Fine vacuum (100 to 0.1 Pa, or 1 to 10^{-3} mbar)	VF	Grey	Grey	Grey
High vacuum (0.1 to 10^{-5} Pa, or 10^{-3} to 10^{-7} mbar)	VH	Grey	Grey	White
Miscellaneous				
Formaldehyde solution	CH_2O	White	Red	Green
Propanol	C_3H_8O	White	Red	Yellow
Methanol	CH_4O	White	Red	Blue
Acetone	C_3H_6O	White	Red	Grey
Trichloroethylene	C_2HCl_3	White	Red	White
Perchloric acid	$HClO_4$	White	White	Red

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Annex A
(informative)

New colour code combinations

It is apparent from Table 1 that there are numerous possible three-colour combinations currently unassigned to a specified fluid. Future editions of this European Standard can include new colour codes, based on currently unused combinations, in response to requests or recommendations made to CEN in the interim period.

During the lifetime of this edition of the standard, if a fluid not listed requires a code, it is recommended that the operating device is completely white, with an appropriate abbreviation or written inscription fixed within the combined areas of zones 2 and 3 or affixed within the immediate proximity of the operating device. However, if the unlisted fluid is a type of non-hazardous water, it is recommended that the operating device is coloured green in zone 1.

Bibliography

[1] EN 737, *Medical gas pipeline systems.*

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