INTERNATIONAL STANDARD

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Ships and marine technology — Identification colours for the content of piping systems

Navires et technologie maritime — Couleurs pour l'identification du contenu des systèmes de tuyauterie

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 14726 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 3, *Piping and machinery*.

This first edition cancels and replaces ISO 14726-1:1999 and ISO 14726-2:2002, which have been technically revised.

Ships and marine technology — Identification colours for the content of piping systems

1 Scope

This International Standard specifies main colours and additional colours for identifying piping systems in accordance with the content or function on board ships and marine structures.

These colours can also be used for piping systems on drawings and diagrams.

This International Standard does not apply to piping systems for medical gases, industrial gases and cargo.

This International Standard can also be used for land installations.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60757, *Code for designation of colours*

CIE 015, *Colorimetry*

3 Terms and definitions

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

3.1
main colour
colour used to indicate a group of similar media

3.2
additional colour
colour used in combination with the main colour to indicate a specific medium

4 Colours

The main colours represented in the electronic file of this International Standard are reference colours; colours of a similar shade and tone may also be used for marking pipes (see Table 1).

Table 1 — Chromaticity

Main colour	Letter code [a]	Co-ordinate points of chromaticity areas [b]								Luminance factor	Example
		1		2		3		4			
		x	y	x	y	x	y	x	y	β	
Black	BK	0,385	0,355	0,300	0,270	0,260	0,310	0,345	0,395	$\leqslant$ 0,03	
Blue	BU	0,078	0,171	0,196	0,250	0,225	0,184	0,137	0,038	$\geqslant$ 0,05	
Brown	BN	0,510	0,370	0,427	0,353	0,407	0,373	0,475	0,405	$\geqslant$ 0,04	
Green	GN	0,313	0,682	0,313	0,453	0,209	0,383	0,013	0,486	$\geqslant$ 0,10	
Grey	GY	0,350	0,360	0,300	0,310	0,290	0,320	0,340	0,370	0,15 $\leqslant \beta \leqslant$ 0,50	
Maroon	MN	0,302	0,064	0,307	0,203	0,374	0,247	0,457	0,136	$\geqslant$ 0,10	
Orange	OG	0,610	0,390	0,535	0,375	0,506	0,404	0,570	0,429	$\geqslant$ 0,25	
Silver	SR	Luminance factor $\beta >$ 0,50									
Red	RD	0,690	0,310	0,595	0,315	0,569	0,341	0,655	0,345	$\geqslant$ 0,07	
Violet	VT	0,250	0,160	0,286	0,146	0,293	0,273	0,304	0,275	0,10 $\leqslant \beta \leqslant$ 0,36	
White	WH	0,350	0,360	0,300	0,310	0,290	0,320	0,340	0,370	$\geqslant$ 0,75	
Yellow	YE	0,522	0,477	0,470	0,440	0,427	0,483	0,465	0,534	$\geqslant$ 0,45	

[a] As given in IEC 60757.

[b] CIE 1931 chromaticity co-ordinates for standard illuminant D65 and 45/0 or d/8 measurement geometry in accordance with CIE 015.

Table 2 — Main colours and media

Main colour	Medium
Black	Waste media [a]
Blue	Fresh water
Brown	Fuel
Green	Sea water [b]
Grey	Non-flammable gases
Maroon	Air and sounding pipes
Orange	Oils other than fuels
Silver	Steam
Red	Fire fighting
Violet	Acids, alkalis
White	Air in ventilation systems
Yellow	Flammable gases

[a] Examples: black water, grey water, waste oil, exhaust gas.

[b] For ships with mixed navigation (sea-river ships): all outside waters.

Table 3 — Additional colours for different media or functions

Waste media	BK (main colour)
Black water	BK – **BU** – BK
Waste oil/used oil	BK – **BN** – BK
Bilge water	BK – **GN** – BK
Exhaust gas	BK – **GY** – BK
	BK – **MN** – BK
	BK – **OG** – BK
	BK – **SR** – BK
	BK – **RD** – BK
	BK – **VT** – BK
Grey water	BK – **WH** – BK
Sewage, contaminated	BK – **YE** – BK

Fresh water	BU (main colour)
	BU – **BK** – BU
Fresh water, sanitary	BU – **BN** – BU
Potable water	BU – **GN** – BU
Distillate	BU – **GY** – BU
	BU – **MN** – BU
Gas-turbine wash water	BU – **OG** – BU
Feed water	BU – **SR** – BU
	BU – **RD** – BU
Cooling fresh water	BU – **VT** – BU
Chilled water	BU – **WH** – BU
Condensate	BU – **YE** – BU

Fuel	BN (main colour)
Heavy fuel oil (HFO)	BN – **BK** – BN
Aviation fuel	BN – **BU** – BN
	BN – **GN** – BN
	BN – **GY** – BN
	BN – **MN** – BN
	BN – **OG** – BN
	BN – **SR** – BN
	BN – **RD** – BN
Biological fuel	BN – **VT** – BN
Gas-turbine fuel	BN – **WH** – BN
Marine diesel oil (MDO)	BN – **YE** – BN

Sea water	GN (main colour)
	GN – **BK** – GN
Decontamination water	GN – **BU** – GN
Sea water, sanitary	GN – **BN** – GN
	GN – **GY** – GN
	GN – **MN** – GN
	GN – **OG** – GN
	GN – **SR** – GN
	GN – **RD** – GN
Ballast water	GN – **VT** – GN
	GN – **WH** – GN
Cooling sea water	GN – **YE** – GN

Non-flammable gases	GY (main colour)
	GY – **BK** – GY
Oxygen	GY – **BU** – GY
Inert gas	GY – **BN** – GY
Nitrogen	GY – **GN** – GY
Refrigerant	GY – **MN** – GY
Compressed air LP (Low pressure)	GY – **OG** – GY
	GY – **SR** – GY
Compressed air HP (High pressure)	GY – **RD** – GY
Control air/regulating air	GY – **VT** – GY
Breathing air [a]	GY – **WH** – GY
Breathing gas [a]	GY – **YE** – GY

[a] This marking is used in submarines for distribution systems of breathing air from cylinders.

Air and sounding pipes	MN (main colour)
Waste media	MN – **BK** – MN
Fresh water	MN – **BU** – MN
Fuel	MN – **BN** – MN
Sea water	MN – **GN** – MN
Non-flammable gases	MN – **GY** – MN
Oil other than fuels	MN – **OG** – MN
Steam	MN – **SR** – MN
Fire fighting	MN – **RD** – MN
Acids, alkalis	MN – **VT** – MN
Ventilation system	MN – **WH** – MN
Flammable gases	MN – **YE** – MN

Table 3 (*continued*)

Oils other than fuels	**OG** (main colour)
	OG – **BK** – OG
Thermal fluid	OG – **BU** – OG
	OG – **BN** – OG
Lubrication oil for gas turbines	OG – **GN** – OG
Hydraulic fluid	OG – **GY** – OG
	OG – **MN** – OG
Lubrication oil for steam turbines	OG – **SR** – OG
	OG – **RD** – OG
Lubrication oil for gears	OG – **VT** – OG
	OG – **WH** – OG
Lubrication oil for internal combustion engines	OG – **YE** – OG

Steam	**SR** (main colour)
Steam for heating purposes	SR – **BK** – SR
	SR – **BU** – SR
	SR – **BN** – SR
Driving steam	SR – **GN** – SR
	SR – **GY** – SR
	SR – **MN** – SR
	SR – **OG** – SR
	SR – **RD** – SR
	SR – **VT** – SR
Exhaust steam	SR – **WH** – SR
Supply steam	SR – **YE** – SR

Fire fighting/ fire protection	**RD** (main colour)
	RD – **BK** – RD
	RD – **BU** – RD
	RD – **BN** – RD
Fire-fighting water	RD – **GN** – RD
Fire-fighting gas	RD – **GY** – RD
	RD – **MN** – RD
Sprinkler water	RD – **OG** – RD
	RD – **SR** – RD
Spray water	RD – **VT** – RD
Fire-fighting powder	RD – **WH** – RD
Fire-fighting foam	RD – **YE** – RD

Acids, alkalis	**VT** (main colour)
	VT – **BK** – VT
	VT – **BU** – VT
	VT – **BN** – VT
	VT – **GN** – VT
	VT – **GY** – VT
	VT – **MN** – VT
	VT – **OG** – VT
	VT – **SR** – VT
	VT – **RD** – VT
	VT – **WH** – VT
	VT – **YE** – VT

Air in ventilation systems	**WH** (main colour)
Discharge air	WH – **BK** – WH
Mechanical supply air, cold	WH – **BU** – WH
Natural exhaust air	WH – **BN** – WH
Atmospheric air	WH – **GN** – WH
Mechanical exhaust air	WH – **GY** – WH
Decontaminated supply air	WH – **MN** – WH
Mechanical recirculated air	WH – **OG** – WH
Mechanical supply air, warm	WH – **SR** – WH
Smoke clearance	WH – **RD** – WH
Conditioned supply air	WH – **VT** – WH
Natural supply air	WH – **YE** – WH

Flammable gases	**YE** (main colour)
	YE – **BK** – YE
Hydrogen	YE – **BU** – YE
	YE – **BN** – YE
	YE – **GN** – YE
Acetylene	YE – **GY** – YE
	YE – **MN** – YE
	YE – **OG** – YE
	YE – **SR** – YE
	YE – **RD** – YE
Liquid gas	YE – **VT** – YE
	YE – **WH** – YE