INTERNATIONAL STANDARD

ISO 14726-1

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

Part 1:
Main colours and media

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

Partie 1: Couleurs et milieux principaux

Reference number
ISO 14726-1:1999(E)

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 3.

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.

International Standard ISO 14726-1 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 3, *Piping and machinery*.

It cancels and replaces ISO Recommendation R 508:1966, of which it constitutes a technical revision.

ISO 14726 consists of the following parts, under the general title *Ships and marine technology — Identification colours for the content of piping systems*

— *Part 1: Main colours and media*

— *Part 2: Additional colours for media and/or functions*

International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet iso@iso.ch

Printed in Switzerland

Introduction

This part of ISO 14726 was developed so that an agreement as to the main identification colours may be reached. In ISO 14726-2, additional colours will be introduced in order to specify the media in the piping more accurately. ISO 14726-2 is being prepared and should be combined with this part of ISO 14726 after completion.

This part of ISO 14726 may also be used for land installations.

Ships and marine technology — Identification colours for the content of piping systems — Part 1: Main colours and media

Part 1:
Main colours and media

1 Scope

This part of ISO 14726 specifies the main colours for identifying the content of piping systems in accordance with the conveyed media on board ships and marine structures.

This part of ISO 14726 does not apply to piping systems for medical gases, industrial gases and cargo.

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

NOTE Additional colours will be given in ISO 14726-2: *Ships and marine technology — Identification colours for the content of piping systems — Part 2: Additional colours for media and/or functions.*

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 14726. For dated references, subsequent amendments to, or revisions of, such publications do not apply. However, parties to agreements based on this part of ISO 14726 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

IEC 60 757:1983, *Code for designation of colours*.

CIE Publication 15.2:1986, *Colorimetry*. (second edition)

3 Term and definition

For the purposes of this part of ISO 14726, the following term and definition applies.

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

NOTE More detailed marking is effected by applying a deviating additional colour. The deviating additional colours will be given in ISO 14726-2 which is under preparation.

4 Main colours (see Tables 1 and 2)

Table 1 — Name of main colour and basic identification colours

Name of main colour	Letter code[a]	Chromaticity coordinates of corner points determining the permitted tighter colour area as given in CIE Publication 15.2								Example[b]
		1		2		3		4		
		x	*y*	*x*	*y*	*x*	*y*	*x*	*y*	
Black	BK	0,385	0,355	0,300	0,270	0,260	0,310	0,345	0,395	
Blue	BU	0,078	0,171	0,196	0,250	0,225	0,184	0,137	0,038	
Brown	BN	0,510	0,370	0,427	0,353	0,407	0,373	0,475	0,405	
Green	GN	0,313	0,682	0,313	0,453	0,209	0,383	0,013	0,486	
Grey	GY	0,350	0,360	0,300	0,310	0,290	0,320	0,340	0,370	
Maroon	MN	0,302	0,064	0,307	0,203	0,374	0,247	0,457	0,136	
Orange	OG	0,610	0,390	0,535	0,375	0,506	0,404	0,570	0,429	
Silver	SR	CIE chromaticity luminance factor β : $\beta > 0{,}50$								
Red	RD	0,690	0,310	0,595	0,315	0,569	0,341	0,655	0,345	
Violet	VT	CIE chromaticity *x* and *y*, luminance factor β : $y < 0{,}17\ x + 0{,}223$; $y < 2{,}6\ x - 0{,}49$; $y > 0{,}559 - 0{,}394\ x$; $y > 7\ x - 1{,}854$ $0{,}36 < \beta < 0{,}50$								
White	VH	0,350	0,360	0,300	0,310	0,290	0,320	0,340	0,370	
Yellow-ochre	YEO	0,522	0,477	0,470	0,440	0,427	0,483	0,465	0,534	

[a] As given in IEC 60 757.

[b] The main colours represented in the electronic file of this part of ISO 14726 can be neither viewed nor printed as true representations of the main colours. Only copies of this part of ISO 14726 printed by ISO can be guaranteed to represent the true main colours.

Table 2 — Main colours and media

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

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

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

c Excluding fire-extinguishing masses.

5 Design

5.1 General

The main colours may be

— applied to the pipeline as an adhesive tape or sign;

— painted onto the pipeline in transverse stripes;

— painted onto the pipeline on the total length.

The markings shall be so positioned that the colour stripes (tapes) are in a direction perpendicular to the axis of the pipe.

Pipelines shall be marked as follows:

— once in each room, at least;

— at each penetration point in bulkheads, walls and decks;

— close to each valve;

— within a distance of 3 m to 5 m of the length of the pipeline, whereby the local conditions may require a more frequent marking due to pipe bends or the close proximity of pipes for different services.

Paints and adhesives of self-adhesive identification labels or coloured tapes shall neither attack nor damage the surface of the pipe components that are to be marked.

5.2 Marking of pipes with tapes

Pipes of up to 200 mm outer diameter:

— the tapes comprise the entire circumference of the pipes and are adhered at their ends by overtaping.

Pipes of more than 200 mm outer diameter:

— the tapes comprise about half the circumference of the pipes.

Pipes in bundles:

— shall be individually marked.

If the marking is not possible over the entire circumference, an abbreviation of the marking is admissible.

A common marking of several pipes with the same content or function is only admissible on collars.

6 Additional markings

6.1 Additional colours

Additional colour markings may be added adjacent to a main colour marking on a pipe, when necessary, to distinguish between pipes marked with the same main colour listed in Table 2, but carrying different types of medium. (For example, a pipe carrying diesel fuel oil and a pipe carrying heavy fuel oil.)

The area (or width) of additional colours shall be less than the area (or width) of main colours so that it is clearly apparent what are the main colours and what are additional colours.

6.2 Supplementary indications

Arrows to indicate the direction of flow in a pipe are recommended. Pipes with flow in opposite directions at different times may be marked with arrows pointing in opposite directions.

Additional marking by text is also recommended to signify unambiguously the content and/or function of the pipe. When additional markings by text are used, consideration should be given to the use of a language understood by the crew members whose responsibilities include being able to identify pipes and piping systems.