

Technical Standard

Datum / Date: 24. 10. 2023

Číslo / Ref. No: ST 13.01.04

Strana / Page 1 (11)

Mondi Štětí a.s.

Marking of Equipment and pipeline

Distribution

Mondi, CZ

Verze Rev.	Datum/autor Date/Author	Datum/revidoval Date/Checked	Datum/schvaloval Date/Approved	Poznámka Notes
00	21.12.2022			
01	24.10.2023 / Petr Bubla	Petr Bubla	Petr Bubla	

Content

1	General	3
2	Sizes of the markings	Chyba! Záložka není definována.
2.1	Text markings	Chyba! Záložka není definována.
2.2	Flow substance colour band	Chyba! Záložka není definována.
2.3	Black perpendicular font on white base.....	Chyba! Záložka není definována.
3	Marking of equipment, valves and motors.....	3
3.1	Slide type sign	3
3.2	Stabile signs	4
	Area code character	4
3.3	Tank marking.....	4
4	Marking of pipelines.....	5
4.1	Marking by panting	5
4.2	System of description	6
4.3	Warning signs.....	Chyba! Záložka není definována.
4.4	Pipeline marking	Chyba! Záložka není definována.
4.5	Example for pipeline marking.....	Chyba! Záložka není definována.
4.6	System of description	Chyba! Záložka není definována.

1 GENERAL

This technical specification for marking of equipment and pipe lines complies with following standards:

ČSN 13 0072 Marking of pipelines in plants according to following substances.

ČSN ISO 3864 – 1-4, ČSN EN ISO 7010 Safety colours and signs.

ISO 20560-1:2020 Safety information for the content of piping systems and tanks, Part 1: Piping systems

Regulation (EC) No 1272/2008 of the European Parliament and of the Council classification, labelling and packaging of substances and mixture.

2 MARKING OF EQUIPMENT, VALVES AND MOTORS

2.1 Slide type sign

For font sizes 10 and 30 mm “Slide type” sign will be used.

The materials of the signs are:

- Symbol sign: plastic and AlMg³ for temperatures above 60°C
- Sign colour: plastic and AlMg³ for temperatures above 60°C
- Slid bar: AlMg³
- Sign holder: AlMg³
- Clamp: high-grade steel
- Clamping strip: high-grade steel
- Clamping: lock high-grade steel
- Riveting: AlMg³

The use of other materials shall be agreed with the Purchaser.

Example of the “Slide type” signs:



Potential suppliers for the “Slide type” signs are:

Patentbefestigung Stell GmbH.

Fa. DI Richard Huber GmbH

2.2 Stabile signs

Stabile signs shall be used for font size 60 mm and above.

Stable signs may also be used as an alternative to "Slide type" signs.

Sign material is aluminium and in corrosive environments stainless steel or plastics.

The size of sign plate shall be specified separately.

Example of the stabile sign:



Valve marking

Example of valve marking:

100-2720Q2153

100 - Nominal size DN
2720 - Department and Area code
Q - Manual valve character
2153 - Running number
Electric motor marking

Example of motor marking:

2720	M	2507
-------------	----------	-------------

Department and **Motor** **Running number**
Area code **character**

2.3 Tank marking

Example of marking of unpressurized tank:

2720T2501
30%NaOH

Position number
Medium description

Paint directly to tank by means of template. Title in black type, medium perpendicular of font size of 60 mm to white base.

Attention: Pressure tank designations according to EN.

3 MARKING OF PIPELINES

3.1 Marking by panting

The marking shall be done by painting onto a pipe or an insulation cover of a pipe using a template.

The paint area shall be cleaned thoroughly and all grease shall be removed before painting.

Pipe material	Marking		
	Color band	White base	Black perpendicular font
Stainless steel, aluminium, GRP, zinc-coated steel-	1 x PC - 50 µm 1 x CC - 60 µm	1 x PC - 50 µm 1 x CC - 60 µm	1 x CC - 60 µm
Protection paint	2 x CC - 30 µm	2 x CC - 30 µm	1 x CC - 60 µm

PC ... Primary coating - Epoxy

CC ... Cover coating – Polyurethane

Alternatively is possible use for marking piping with smooth surface in interior self-adhesive foil, that has to be immune against the dewy water, against splashy water, against chemical, oil and the grease, immune against vested, immune against temperature and atmosphere of environs. The foil must be fixed on piping by style, which ensure stability of foils and text. In any case is not allowed to foil to unglue resp. fall to the ground from designation surface.

Generally use of plastic shall be avoided and it is prohibited at places where the plastic can get mixed with the pulp.

3.2 System of description

Colour band in the beginning of pipeline marking is indicating the flow substance of the pipeline. Black font designation, medium perpendicular of size 60 mm to a white base. Colour strip round the piping perimeter. The designation is placed according to possibility at distance 150 till 500 mm from machineries, from cross piping on pipe bridges, from armatures, before and after barriers and before and after walls by which the piping lead. On straight pipe the designation is made in necessary places or regular at distance 5 till 10m. RAL colors are shown in standard ST04 MG0001 Annex 1 – RAL Color coding.

3.3 Instruction for the installation of safety information signs for pipelines and pipeline routes

This brief guide for the installation of safety information signs is based on the international standard ISO 20560 - 1 "Safety information for the content of piping systems and tanks".

A. Pipe Marking System



1. Color Coding for Identification of Pipe Contents

Safety information signs for pipelines shall include color coding that uses basic identification colors and a supplementary yellow color as a basis for indicating hazards.

	barva color	písmenná zkratka barvy letter code	RAL kód RAL	název barvy color name	médium content of pipe	kontrastní barva contrast color
Bezpečnostně identifikační barva Safety colour	žlutá (bezpečnostní barva) yellow (safety colour)	YE	1003	žlutá (signální) signal yellow	nebezpečné látky hazardous substances	černá black
	šedá grey	GY	7001	stříbrná šed' silver grey	plyn v plynné/kapalné formě gases (g or l condition)	černá black
Běžná identifikace Basic identification color	černá black	BK	904	černá (signální) signal black	kapaliny a fixní materiály (prášky, granule) liquids and fixed materials (powders, granulates)	bílá white
	zelená green	GN	6018	zeleno-žlutá yellow green	voda water	bílá white
	modrá blue	BU	5015	nebesky modrá sky blue	vzduch, kyslík Air, oxygen	bílá white
	červená red	RD	3001	červená (signální) signal red	požární média firefighting medium	bílá white
	oranžová orange	OG	2003	pastelově oranžová pastel orange	Kyseliny a kyselé sloučeniny Acids	černá black
	fialová violet	VT	4001	červeno-fialová (šeříková) red lilac	Zásadi a zásadité sloučeniny Alkalis (leaches)	bílá white
	tmavě hnědá Maroon	MN	8015	tmavě hnědá (kaštanová) maroon	buničina, výmět ... pulp, broke ...	bílá white

2. Name of Pipe Content

The **name of the pipe contents is displayed either as text or as a chemical formula** (e.g. sodium hydroxide/NaOH, sulfuric acid/H₂SO₄, sodium chloride/NaClO₃).

Longer words can be abbreviated using standard approved abbreviations that operators are familiar with and that are found in the organization's documentation (Mondi's own terminology - reject, pulp, white/green/black liquor, industrial water/water under the screen, etc.).

The content of the marking shall be centered and placed in the safety identification color using the colors defined in the table.

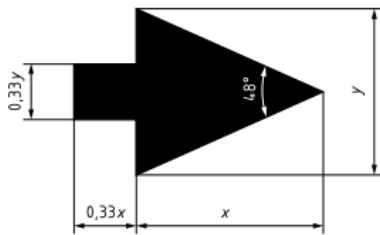
A maximum of two lines of text should be used to display the content title.

Minimum text height should be 7 mm (for the smallest pipe diameters)

3. Arrow

The arrow serves as an indicator of the direction of flow.

The minimum height of the arrow point (y in the picture) should be 10 mm.



4. Warning Signs or Pictograms

Pictograms according to GHS/CLP or warning signs according to ISO 7010 or both shall be placed in the **yellow box**.

Pictograms according to GHS/CLP:



Warning symbols according to ISO 7010:

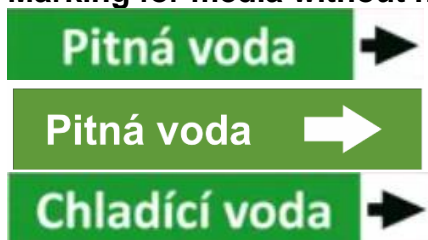


5. Additional Information

The additional white field with accompanying information is optional (temperature, pressure, route from where - to where the medium flows, etc.) of the heat exchanger, etc.)

B. Relevant Marking Options

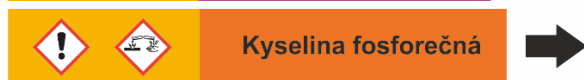
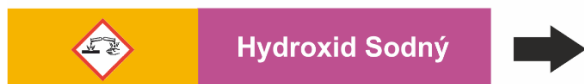
Marking for media without hazardous properties



Chladicí voda →

Stlačený vzduch →

Marking for media with hazardous properties



Marking with optional additional white field



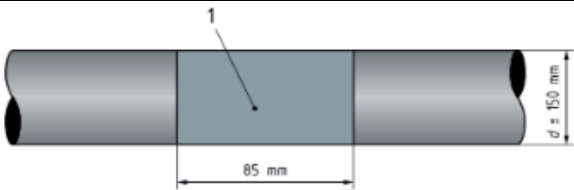
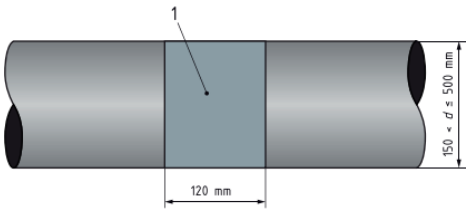
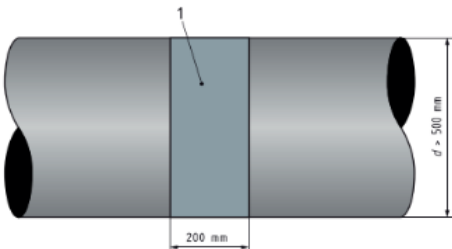
C. Layout Requirements

To determine the correct size and proportion of the various elements, the following specifications for safety information signs should be considered:

The minimum width of the basic identification color area on the pipe is specified in the table below.

pipe width	min. marking width	min. marking height	min. color area in mm
up to 150 mm	85 mm	20 mm	50 times the pipe diameter

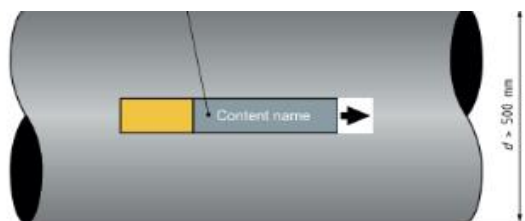
For maximum visibility, signs

			
from 150 mm to 500 mm	120 mm	20 mm	50 times the pipe diameter
			
over 500 mm	200 mm	20 mm	25,000 mm ²
			

should have sufficient contrast with the surface on which they are installed.

If the pipe is visible from two sides, the marking should appear on both sides of the pipe.

If an additional yellow identification field is also used to indicate the hazard, the minimum width should be **50% of the width of the area of the basic identification color**.



D. Placing Safety Information Signs on the Pipeline

Safety information signs shall be permanently installed on the pipeline where they are visible, in particular with regard to:

- operational aspects of the installed piping;
- user access paths;
- working platforms;

Ladders, scaffolding or other temporary equipment need not be considered as a potential obstruction when marking.

The maximum distance between two installation points on the pipe should not exceed 10 m.

In outdoor areas or indoors in heavily lit areas, a greater distance may be used, taking into account all anticipated viewing distances.

If installation directly on the pipe causes poor legibility, consideration should be given to mounting the safety marking on plates or supports which are then attached to the pipes using brackets.

In areas with multiple pipes side by side, safety information signs must be installed in close proximity and in a uniform manner (see figure).



Recommended location of safety information signs:

- near valves
- on both sides of the connection points for major equipment such as pumps, tanks, vessels and containers
- at every point of branching, crossing
- on both sides of walls, floors and other points separating zones
- near stairways and platforms on elevated pipes
- at the beginning and end of pipe bridges
- where pipelines cross under bridges
- at the entrance and exit of the technological equipment