

# Safety information for the content of piping systems: Status of standardization

The new standard ISO 20560-1  
Differences and challenges

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# Pipe marking around the globe

What kind of standards are there?

What labeling elements are displayed?

## (Too) many national standards + Companies' own standards

Maritime shipping:	ISO 14726 Mariner Standard (color coding only)
Great Britain:	BS 1710 (color coding + GHS)
Germany:	DIN 2403 (color coding + GHS)
Netherlands:	NEN 3050 (color coding + GHS)
USA:	ANSI/ASME A 13.1 (color coding + GHS )
Norway:	NORSOK (technical info) (Norwegian Offshore)

Even more standards (e.g. Asian countries)

No standards at all in some countries

Europe -> Council Directive 92/58/EEG (color coding + GHS or warning signs)

## One standard for everyone -> ISO 20560-1


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

Convenor: Netherlands      International working group

Goal: International standardization of pipeline and tank labeling

## Most important elements for pipe marking

Which information is considered significant (worldwide):

- Content Name / Chemical formula
- GHS hazard pictograms
- flow direction, indicated by an arrow 

optional information:


additional warning signs e.g. hot surface 

technical information like pressure, temperature, ...

Flow material	DIN 2403	BS 1710	NEN 3050	ANSI/ASME A 13.1
Water	Green	Green	Green	Green
Steam	Red	Grey	Grey	
Air	Grey	Blue	Blue	Blue
Flammable gases	Yellow	Ocher	Yellow	Yellow
Non-flammable gases	Yellow	Ocher	Yellow	
Acids	Orange	Violet	Orange	Orange
Alkalis	Violet	Violet	Violet	Orange
Flammable liquids and solids	Brown	Brown	Brown	Brown
Non-flammable liquids and solids	Brown	Black	Black	
Oxygen	Blue			
Electrical service line		Orange		
Firefighting content		Red	Red	Red
Warning		Yellow		
Fresh water		Blue		

# „Should“ and „optional“ - Requirements of ISO 20560-1

## „Should“

- Content description (Name / Chemical formula same area as identification color)
- GHS hazard pictogramm + safety signs
- Flow direction 
- Safety colors (Yellow/Red) if necessary

## Optional

- Complementary information
- Complementary colors

	Flow material	
Safety color	Warning color / dangerous substance	<b>Yellow</b>
Identification color	Gases	<b>Grey</b>
	liquids and solids	<b>Black</b>
	Acids	<b>Orange</b>
	Alkalis	<b>Violet</b>
	Firefighting content	<b>Red</b>
	Water	<b>Green</b>
	Air	<b>Blue</b>

Same color:

Flow material	DIN 2403	ISO 20560-1
Water	Green	Green
Acids	Orange	Orange
Alkalis	Violet	Violet

Problem 1: Red

Flow material	DIN 2403	ISO 20560-1
Steam	<span style="background-color: red; color: white; padding: 2px;">Red</span>	<span style="background-color: yellow; padding: 2px;">Yellow</span> <span style="background-color: green; color: white; padding: 2px;">Green</span>
Firefighting content		<span style="background-color: red; color: white; padding: 2px;">Red</span>

Problem 2: Air vs. oxygen

Flow material	DIN 2403	ISO 20560-1
Air	<span style="background-color: grey; color: black; padding: 2px;">Grey</span>	<span style="background-color: blue; color: white; padding: 2px;">Blue</span>
Oxygen	<span style="background-color: blue; color: white; padding: 2px;">Blue</span>	<span style="background-color: yellow; padding: 2px;">Yellow</span> <span style="background-color: grey; color: black; padding: 2px;">Grey</span>
Gases		<span style="background-color: grey; color: black; padding: 2px;">Grey</span>



## Possible problems in industrial parks

The new standard has been accepted and is applied in Denmark and the Netherlands

In Industrial parks -> different companies from different countries

Worst case: each company prefers a different marking style

Mixing of new and old marked pipes

Connections of new pipes and old ones marked the “old way”

The service company and especially the maintainer **MUST KNOW**: “what is inside”

Clear agreements, information and instructions are imperative.

In case of an accident with leakage with substance release you must know:

“What is inside?” -> “Should I stay, or should I go?”

Information for the firefighters -> Which extinguishing agent do I use? Where is it?

**Vielen Dank  
für Ihre Aufmerksamkeit.**

