

# **Pipe Marking Guide**

A guide to marking the pipes in your facility according to OSHA/ANSI and other standards.



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Creative Safety Supply is the leader in visual safety. We aim to help you create a safer, more efficient and compliant workplace using visual tools such as floor marking tapes, signs, labels, 5S & Lean products, and safety merchandise.



## Introduction

Marking pipes in industrial, commercial, and institutional facilities can help make a workplace **safer** and **more efficient**. When pipes are clearly labeled, **fewer accidents** involving injuries and damage to property occur.

This pipe marking guide will explain the best practices for creating a visual pipe marking system to increase safety and efficiency in your workplace.

## Why it's important to label pipes in your facility.

If the people working in your facility—and even visitors and emergency responders—cannot easily see what flows through a pipe, this problem can lead to dangerous situations. Pipes might be misidentified or someone might not even consider the hazards related to a particular substance because they do not know it's present. Improperly labeled pipes can also compromise the efficiency of your workplace, as employees may need to spend extra time figuring out what travels through a pipe during repairs.

Furthermore, many industries have specific standards for labeling. For example, health care facilities are subject to specific requirements for pipes carrying medical gases, while marine vessels must use special color-coding.

Most facilities, however, should follow the **ASME/ANSI A13.1 standard for pipe marking**, which requires an employer use labels that state what a pipe contains and what possible hazards are related to that substance. By following this standard, facilities can remain compliant with OSHA regulations (29 CFR 1910.261 (a)(3)(ii)) as well.

## Where labels are required

The first step to proper pipe labeling is to understand **where** labels are needed. This step is actually fairly straightforward, as you only need to place pipe markers in four main places:



ASME/ANSI pipe marking standards recommend labeling all pipes, but <u>at the very least</u> you must label pipes under the following circumstances:



## **Assess your facility**

With the key requirements for pipe marking in mind, do a walkthrough of your facility to document your pipe systems. Use your facility's blueprints to help you identify any areas that may not be easily visible.

Take note of general information including **what's in your pipes**, **what direction** that substance is flowing, **where the substance goes**, and **when the pipes change direction**. Also make notes of **possible hazards** associated with the substances flowing through your pipes.

Look more closely at any labels you may already have in place:

Are they up-to-date?

Are they in good condition?

Consider areas where labels may be missing:

Have new pipes been added?

Is there new equipment that uses pipes?

Has repair work been performed near pipes?

## Label formatting requirements

The design of a label must comply with pipe marking regulations, which aim to make labels as visible as possible. Your labels must incorporate three main elements: **label color**, **label size**, **and text size**.

#### **COLOR GUIDELINES**

Content Type	Description	<b>Required Colors</b>	Example
FLAMMABLE/ OXIDIZING	Fluids that are a vapor or produce vapors that can ignite and continue to burn in air.	Black on Yellow	+ HYDROGEN +
COMBUSTIBLE	Fluids that may burn but are not flammable.	White on Brown	ACETIC ACID
TOXIC/CORROSIVE	Fluids that are corrosive or toxic or will produce corrosive or toxic substances.	Black on Orange	➡ NITRIC ACID ➡
FIRE QUENCHING	Water and other substances used in sprinkler fire-fighting piping systems.	White on Red	➡ HALON ➡
OTHER WATER	Any other water except for water used in sprinkler & fire-fighting piping systems.	White on Green	➡BOILER WATER ➡
COMPRESSED AIR	Any vapor or gas under pressure that does not fit a category above.	White on Blue	→COMPRESSED AIR→
OTHER	Definable by user.	White on Purple	➡ OTHER ➡
OTHER	Definable by user.	White on Black	➡ OTHER ➡
OTHER	Definable by user.	Black on White	➡ OTHER ➡
OTHER	Definable by user.	White on Gray	➡ OTHER ➡

#### LABEL AND TEXT SIZE GUIDELINES

The size of a label should correspond to the size of a pipe; larger pipes will always require larger labels. When you size labels according to ASME/ANSI standards, people will notice them and be able to see them from an appropriate distance.

Pipe Diameter	Min. Label Size	Min. Text Height
<b>0.7" to 1.3"</b>	1" x 8"	0.5"
(18 - 33 mm)	(25 x 203 mm)	(13 mm)
<b>1.4" to 2.4"</b>	1" x 8"	0.7"
(34 - 61 mm)	(25 x 203 mm)	(19 mm)
<b>2.5" to 6.7"</b>	2" x 12"	1.3"
(62 - 170 mm)	(51 x 305 mm)	(32 mm)
<b>6.8" to 10"</b>	3" x 24"	2.5"
(171 - 254 mm)	(102 x 610 mm)	(64 mm)
<b>10"+</b>	4" x 32"	3.5"
(Over 254 mm)	(153 x 813 mm)	(89 mm)



## Test the high-quality and durability of LabelTac<sup>®</sup> before you begin your pipe labeling project.

Pipe marking is our passion, and we are here to help you protect your employees from hazardous materials with the best pipe marking labels in the industry. Click the link below to get free LabelTac<sup>®</sup> sample labels!

#### What's included:

- A selection of LabelTac<sup>®</sup> pipe marking and other labels
- SafetyTac<sup>®</sup> shape samples for floor marking
- A comprehensive installation guide

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#### **Optional: Adding GHS Symbols to Pipe Markers**

If a pipe is connected to a container that is labeled to follow GHS requirements, the ANSI/ASME A13.1 standard confirms that a corresponding pipe label may be provided to match. If this route is chosen, the label must include the following:

- The chemical name/identifier
- The pictogram(s)
- The signal word
- The physical, health, and environment hazard statement(s)

It is also necessary to remember that the color scheme from ANSI/ ASME A13.1 still applies to these modified labels.



#### **COMMON LABEL ABREVIATIONS**

When labeling the contents of your pipes, some text may be too long to fit on a label. When that is the case, use standardized abbreviations from the following list.

ABED	Aux. Building Equipment Drains	CCW	Component Cooling Water/ Closed Cooling Water
ABEDT	Aux. Building Equipment	CD	Condensate
	Drain Tank	CDB	Condensate Booster
ABFD	Aux. Building Floor Drain	CDT	Chemical Drain Tank
ABFDT	Aux. Building Floor Drain Train	CHAM	Chamber
ACB	Air Circuit Breaker	– CHAN	Channel
		– CHNG	Change
	Actuate	– CHRG	Charging
	Adjust	– CJB	Cold Junction Box
	Auxiliary Feedwater	– СКТ	Circuit
	Advinary reedwater	– CL	Cold Leg
	Andini	- CLNG	Cooling
	Andrea	- CMPT	Computed
		- CNMT	Containment
AU(V)		- COM	Common
AVG	Average	- COMP	Component
BA	Boric Acid	- CONC	Concentration
	Bar Graph	- COND	Condenser/Condensate
BAI	Boric Acid Tank / Battery	- CONDTY	Conductivity
	Biow Down	- CONT	Controller
	Bistable	- CONT ROD	Control Rod
BII	Boron Injection Tank	- CONTR	Control
BKR	Breaker	– COR	Correction
BL	Black Liquid	– CORR	Correlation
BOP	Balance of Plant	- COUNT	Count
BTM	Bottom	– CPM	Counts Per Minute
BTU	British Thermal Unit	– CPU	Central Processing Unit
BUP	Backup	– CPUS	Central Processing Units
C	Centigrade (aka. Celsius)	– CR	Control Room
C/CB	Condensate/Cond. Booster	– CRB	Chemical Recovery Boiler
C1M	Cumulative One Minute		Control Rod Drive
CAB	Cabinet	_	Mechanism
CAL	Calibration/Calorie	CS	Containment Spray
CAUS	Cause		

CSR	Cable Spreading Room	
CST	Condensate Storage Tank	
CW	Circulating Water	
CWP	Circulating Water Pump	
CYL	Cylinder	
D/G	Diesel Generator	
DEG	Degrees	
DEMIN	Demineralizer	
DET	Detector	
DEV	Deviation	
DIV	Division	
DO	Diesel Fuel Oil	
DOT	Dirty Oil Tank	
DSCH	Discharge	
DT	Delta Temperature	
ECCS	Emergency Core Cooling System	
EDT	Equipment Drain Tank	
EFCT	Effect	
EFLNT	Effluent	
EHC	Electro Hydraulic Control	
ELEC	Electrical	
EQ	Equipment	
EQUIP	Equipment	
ES	Extraction Steam ESS Essential Service	
ESF	Engineered Safety Feature	
EXH	Exhaust/Exhauster	
EXPANS	Expansion	
EXTR	Extracted Extractor/ Extraction	
F	Fahrenheit	
FCV	Flow Control Valve	
FD	Forced Draft	
FH	Fuel Handling	
FLW	Flow	
FO	Fuel Oil	
FREQ	Frequency	
FRNT	Front	
FW	Feed Water	
GOV	Governor	
GPM	Gallons Per Minute	

GRP	Group	
GSC	Gland Steam Condenser	
GV	Governor Valve	
HG(A)	Mercury (absolute)	
HGHT	Height	
HIDP	High Differential Pressure	
HL	Hot Leg	
HOV	Hydraulic Operated Valve	
HP	High Pressure	
HR(S)	Hour	
HRSG	Heat Recovery Steam Generator	
HT RT	Heat Rate	
HTNG	Heating	
HU/CD	Heatup/Cooldown	
HUT	Hold up Tank	
HYD	Hydraulic	
I/P	Current to Pressure	
I/V	Current to Voltage	
IA	Instrument Air	
ID	Identification/Inside Diameter	
INBO	Inboard	
INC	Increase	
INF	Influent	
INIT	Initial	
INL	Inlet	
INSERTIN	Insertion	
INST	Instrument/Instantaneous	
INT	Internal	
INTERM	Intermediate	
IOD	lodine	
ISOL	Isolation	
JUNCT	Junction	
K	Kilo	
LNG	Long/Liquified Natural Gas	
LO FLW	Low Flow	
M/G	Motor Generator Sets	
MAINT	Maintenance	
MAX	Maximum	

MCR	Main Control Room	
MFP	Main Feed Pump	
MIN	Minutes/Minimum	
MOIST	Moisture	
MPH	Miles Per Hour	
MPS	Miles Per Second	
MS	Main Steam/Moisture Separator	
MSIV	Main Steam Isolation Valve	
MSR	Moisture Separator Reheater	
MTR	Motor	
MU	Makeup	
MVBL	Movable	
NAOH	Sodium Hydroxide	
NAR	Narrow	
NAR RNG	Narrow Range	
NBL	Noble	
NEG	Negative	
NEUT	Neutron	
NIS	Nuclear Instrumentation System	
NR	Narrow Range	
NUC	Nuclear	
OG	Off-Gas	
00S	Out of Service	
OP	Over Pressure	
OPER	Operator/Operating	
ОТ	Over Temperature	
OT-OP	Over Temp-Over Pressure	
OUT	Output	
OUTBD	Outboard	
OUTLT	Outlet	
OVERLD	Overload	
OVERTEMP	Over Temperature	
OVRPWR	Overpower	
PART	Partial	
PARTIC	Particulate	
РСТ	Percent	
PCV	Pressure Control Valve	
PENET	Penetration	

PMG	Permanent Magnet Generator	
PNEU	Pneumatic	
PORV	Power Operated Relief Valve	
POS	Positive	
POT	Potentiometer	
PPB	Parts per Billion	
PPM	Parts per Million	
PR58	Process Radiation Monitor 58	
PREAMP	Preamplifiers	
PRG	Purge	
PRI	Primary	
PROC	Process	
PRT	Pressurizer Relief Tank	
PS	Power Supply	
PSI	Lbs Per Square Inch	
PSIA	Lbs Per Square Inch Absolute	
PSIG	Lbs Per Inch Gauge	
PSI0	Lbs Per Square Inch Differential	
PT	Point	
PTL	Pull-To-Lock	
PUL	Pulverizer	
PW	Primary Water	
PWR RNG	Power Range	
PRV	Pressure Relief Valve	
PZR	Pressurizer Relief Tank	
RC	Reactor Coolant	
RCDT	Reactor Coolant Drain Tank	
RCFC	Reactor Containment Fan Cooler	
RCL	Reactor Coolant Loop	
RCS	Reactor Coolant System	
RDT	Reheater Drain Tank	
RECOMB	Recombiner	
REGEN	Regenerative	
REL	Relative	
RESID	Residual	
RH	Residual Heat	

RHR	Residual Heat Removal	
RHT	Reheat	
RLY	Relay	
RNG	Range/Running	
ROC	Rate of Change	
RTD	Resistance Temp. Detector	
RTN	Return	
RVLIS	Reactor Vessel Level Indication System	
RW	Radwaste	
RWST	Refueling Water Storage Tank	
S/G	Steam Generator	
SA	Service Air	
SB	Service Building	
SEC	Second	
SEL	Select	
SEP	Separator	
SERV	Service	
SFP	Service Fuel Pump	
SGTR	Steam Generator Tube Rupture	
SI	Safety Injection	
SPEC	Specification	
STDY	Steady	
STNBY	Standby	
STOR	Storage	
SUPPR	Suppressed	
SUPRESS	Suppression	
SW	Service Water/Switch	
SWST	Secondary Water Storage Tank	
T/C	Thermocouples	
TAMB	Temperature Ambient	
TAVG	Average Temperature	
ТВ	Turbine Building/Terminal Box/Block	
тс	Cold Leg Temperature	
TCV	Temperature Control Valve	
TD	Turbine Drain	
TG	Turbine Generator	
THER	Thermal	
THRT	Throttle	

THST	Thrust		
TREP	Reference Temperature		
TRNA	Train A (B, C, etc.)		
TRNSNT	Transient		
TRP	Trip		
TTD	Terminal Temp. Difference		
TURBS	Turbines		
UNCONT	Uncontrolled		
VAC	Vacuum		
VALS	Values		
VAP	Vapor		
VAR	Variance		
VCT	Volume Control Tank		
VIB	Vibration		
VNT	Vent		
VOL	Volume		
WR	Wide Range		
XFR	Transfer		
XMTR	Transmitter		

#### **INDUSTRY-SPECIFIC LABEL GUIDELINES**

For most industries, abiding by ASME/ANSI pipe marking standards will be sufficient for staying safe and OSHA compliant. There are some workplaces, though, that are required to comply with more specific requirements due to the particularly volatile nature of the substances the use in their pipes, or because of the uniquely complex environment of these workplaces. These include:

- Ammonia Pipe Marking
- NFPA 99/CGA C-9 Pipe Marking
- ISO/DIS 14726 Sea Vessel & Marine Pipe Marking
- Water Treatment Pipe Marking
- Commercial Building Pipe Marking

To learn more about these guidelines, visit our Pipe Marking Standards article at <u>www.creativesafetysupply.com/articles/guide-to-pipe-marking-standards/</u>

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ISO/DIS Since marine of vessels must the informatio recognized. W to read your p	14726 Sea Vessel & Mai environments are required to carry fresh w comply with additional pipe marking color n they need about the contents of pipes. E hether you're docked in Jakarta or passing pe marking easily.	rine Pipe Markin ater along with gases, wast codes. This extra pipe mark ecause vessels travel such through the Mozambique (	<b>Ig</b> e media, and fire-fighting chemicals, sea- fing provides workers and first responders vast distances, these codes are internatic Channel, workers and first responders will	FREE CUIDE PIPE MARKING Get compliant fast with this to-the-point guide to pipe marking. S with onally be able
Marine Pipe M <u>14726</u> to indic by ISO/DIS 14 color should b that of the ma	arking Standards have <b>main colors</b> , which ate groups of similar substances. <b>Additio</b> 726-2) are added to indicate specific subs e surrounded by the main color and have a in color.	are defined by <u>ISO</u> nal color bars (defined ances. The additional width smaller than	Main Color	Pipe Marking Guide Other FREE Resources:
pipes for flow marking the d text where pos standards.	andards, Marine Pipe Marking Standards : direction. Although this is not required, ex rection of flow with arrows or arrow-band ssible can help avoid confusion about the	to not require marking perts strongly advise tape. Additionally, using contents of your pipes for s	Additional Color	Pipe Marking     Free Pipe Marking Pocket Guide     Free Marine/Offshore Pipe Marking     Guide
	FRESH WATER Fresh Water Condensate from heating system Fresh water - sanitary Cooling fresh water	(blue) FLAMMAE Flammable gas Hydrogen Acetylene Mixture of Prop	BLE GASES (yellow) es ane/Butane	<ul> <li>Free Ammonia Pipe Marking Guide</li> <li>Infographic: Pipe Marking 101</li> </ul>
	Fead water Distillate Potable water Chilled water Condensate Waste MEDIA Waste avdia	NON-FLAI Non-flammable Oxygen Breathing Gas Nitrogen Refrigerant	MMABLE GASES (gray) gases	Chat pay

# How to place labels for maximum visibility

Pipe marking labels should be positioned in such a way that they are visible from most people's line of sight. A few guidelines about visibility/ placement are:

- The label should be visible from the point of normal approach
- The label should be visible at every entry point in the floor or wall
- When a pipe is located below normal line of sight, put the label above the pipe's horizontal centerline.
- When a pipe is located above normal line of sight, put the label below the pipe's horizontal centerline.



## How to make pipe labels

Choose from 1 of 3 options:

### 1. Purchase pre-made labels

Order common pipe labels from a label vendor. Make sure to get labels in the size, color, and material you need. This option works well when you have a **small pipe marking project**.

### 2. Order custom labels

Many label vendors can print custom pipe labels. This solution is helpful when you need pipe labels for **less common pipes**.



### 3. Print your own labels

Bring the printing process in-house with an industrial label printer. These printers can print vinyl labels in the colors and sizes your facility requires. This method is often the **most cost effective** and it **eliminates shipping time**. It's great for large pipe marking projects and for updating your pipe marking system whenever the need arises.

# Design, print, and apply labels in minutes with a LabelTac<sup>®</sup> industrial label printer.

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# Get everything you need to create weatherproof vinyl pipe labels in one simple bundle.





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## **Additional resources**

#### **Related Products**

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- Ammonia Pipe Marking Quick Guide
- Facility Marking Workbook

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