ANSI/ASME A13.1

Latest Revision ANSI / ASME A13.1

ANSI / ASME A13.1 is the most common pipe identification standard used in the United States. The standard specifies the primary and secondary means of identifying pipe content, as well as, the size, color and placement of the identification device.

1. Primary Identification

The legend (name of pipe content) and directional flow arrow remain the primary means of identifying pipe content. The size and placement of the marker and arrow has not changed. See ANSI / ASME size table and installation recommendations for details.

Legends should use arrows to indicate direction of flow. Where flow can be in both directions, arrows in both directions should be displayed. Contents should be identified by a legend with sufficient additional details such as temperature, pressure, as are necessary. Legends should be brief, informative, pointed, and simple for greatest effectiveness.



1.1 Additional Means of Identification ASME A13.1

ASME A13.1 incorporated the GHS pictograms into the 2015 revision and has recommended their use as part of the legend.

"The applicable GHS pictograms as illustrated in Fig. 1 may be included as part of the legend. Where piping is connected to containers that are labeled in accordance with GHS requirements, a corresponding label on the piping may be provided. The corresponding label should contain at least the product name or identifier, the pictogram, the signal word, and the physical, health and environmental hazard statements."



Fig. 1



GHS01 Health Hazard

Health Hazard • Carcinogen Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity



Exclamation Mark Exclamation Mark Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)



Gas Cylinder Gases Under Pressure



Eye Damage
Corrosive to Metals

GHS06 Corrosion • Skin Corrosion/ Burns Exploding Bomb Explosives Self-Reactives

Organic Peroxides

GHS07 Flame Over Circle Oxidizers

GHS08 Environment Skull (Non-Mandatory)

Aquatic Toxicity

GHS09

Skull and Crossbones • Acute Toxicity (fatal or toxic)

2. Secondary Identification

GHS02

Hammables
Pyrophorics
Self-Heating
Emits Flammable Gas
Self-Reactives
Organic Peroxides

Flame • Flammables

ASME A13.1 4.2 Color: "Color should be used to identify the characteristic hazards of the contents. Color should be displayed on, or contiguous to, the piping by any physical means, but its use shall be in combination with a legend. Color may be used in continuous, total-length coverage or in intermittent displays. Colors preceded by the word "Safety" shall meet the requirements of ANSI/NEMA Z535.1"

Flammable Fluids: Used for fluids that, under ambient or expected operating conditions, are a vapor or produce vapors that can be ignited and continue to burn in air. The term thus may apply, depending on service conditions, to fluids defined for other purposes as flammable or combustible.

Oxidizing Fluids: Oxidizing fluid is any gas or liquid that may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does.

Fire Quenching Fluids: This classification includes water, foam and CO2 used in sprinkler systems and fire fighting piping systems.

Toxic & Corrosive Fluids: This classification includes fluids that are corrosive or toxic, or will produce corrosive or toxic substances when released.

Combustible Fluids: This classification includes fluids that can burn, but are not flammable.

ANSI / ASME A13.1 Colors

Fluid Service	Colors
Flammable & Oxidizing Fluids	Yellow/Black
Potable, Cooling, Boiler Feed & Other Waters	Green / White
Compressed Air	Blue / White
Fire Quenching Fluids	Red / White
Toxic & Corrosive Fluids	Orange / Black
Combustible Fluids	Brown / White
Defined by User	Purple / White
Defined by User	White / Black
Defined by User	Gray /White
Defined by User	Black/White

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3. Placement

Always position pipe labels on pipes to achieve the best visibility. Install pipe labels below or above the horizontal centerline of the pipe when pipes are located above or below the normal line of vision.



Apply pipe labels adjacent to changes in direction and/or branches.





Install pipe labels close to valves or flanges



Install pipe labels before and after all wall, floor and ceiling penetrations.



Install pipe labels at frequent intervals on straight pipe runs. Brimar recommends 20 to 25 ft.

4. ANSI / ASME A13.1 Size Chart (Pipe Overall Diameter, Marker Size & Letter Height)

The following chart shows the recommended pipe marker letter height and marker size based on the outside pipe diameter, including insulation of the pipe to be identified. For pipes with an O.D. smaller than 3/4" (19mm) and for valve and fitting identification, the use of a permanent legible tag is recommended.



Pipes with Diameter (O.D.) 0.7" to 1.3" (18 to 33 mm) Marker Length: 8" (200 mm) Legend Height: 0.5" (13 mm)



Pipes with Diameter (O.D.) 1.4" to 2.4" (34 to 61 mm) Marker Length: 8" (200 mm) Legend Height: 0.7" (19 mm)



Pipes with Diameter (O.D.) 2.5" to 6.7" (62 to 170 mm) Marker Length: 12" (300 mm) Legend Height: 1.3" (32 mm)



Pipes with Diameter (O.D.) 6.8" to 10" (171 to 254mm) Marker Length: 24" (600mm) Legend Height: 2.5" (64mm) Pipes with Diameter (O.D.) Over 10" (Over 254mm) Marker Length: 32" (800mm) Legend Height: 3.5" (89mm)

5. Abandoned Piping

Piping that has been abandoned in place should be identified. The recommended color scheme is safety white background with black letters. A black border should be added to the identification. When the abandoned piping is protected from corrosion by the addition of a pressurized fluid or contains residual hazardous material, the legend should indicate that.