Used Compressed Gas Cylinder Identification Best Practices

Used compressed gas cylinder identification is an important part of maintaining a safe, compliant work environment in many industrial operations. The process of identifying and categorizing these cylinders is crucial to ensuring safety, efficient operations, and proper resource management.

Misidentification of used cylinders can lead to operational inefficiencies and potential risks, highlighting the imperative need for accurate identification practices. This paper covers the cylinder markings and indicators users must consult to ensure consistent identification.

Essential Best Practices for Identifying Gas Cylinders

For guidance on used compressed gas cylinder identification, businesses can consult safety literature from the following organizations:

- OSHA
- Department of Transportation (DOT)
- The **Compressed Gas Association** (CGA)

Businesses should follow cylinder identification markings to ensure correct and safe handling. Best practices for cylinder identification require adhering to these cylinder markings and indicators.

1. Cylinder Capacity

Provides details about the volume or quantity the cylinder can hold. Accurate knowledge of the capacity is necessary to prevent overfilling and to maintain operational safety.

2. Data Labels

Data labels should indicate the contents of the cylinder and hazards associated with the contents according to **OSHA 29 CFR. 1910.253**. Cylinder data labels must always indicate gas contents by name and not easily mistaken color codes.

3. Stamped Cylinder Markings

Stamped cylinder markings serve as permanent identifiers, directly engraved onto the body of the cylinder. These markings are crucial for safety, identification, and regulatory compliance. Their permanence ensures that they remain with the cylinder throughout its lifecycle, providing essential details to users, inspectors, and regulatory authorities.

- **DOT specifications:** According to **DOT 173**, the first three characters of the stamped markings indicate the type of material from which the cylinder is constructed. Understanding the material is important as it determines what gases can be safely stored in the cylinder and may have implications for cylinder handling.
- **Operating pressure:** The characters after the DOT material identification signify the operating pressure of the cylinder. Knowing the operating pressure is essential to avoid overfilling and ensures safe use and storage. Adherence to this operating pressure falls in line with general safety guidelines, especially those provided by such as **OSHA 29 CFR 1910.101** and **CGA C-7** for maintaining the structural integrity of compressed gas containers.
- **Serial number:** This unique identifier is crucial for inventory management, safety inspections, traceability, and tracking of the cylinder's usage history.
- **Ownership:** The ownership marking, typically found on the neck ring of the cylinder, signifies whether the cylinder is industry-owned or customer-owned. This distinction plays a role in storage, handling, and refill practices.

4. Information on the Rupture Disc

The rupture disc on the back of cylinder valves acts as a pressure relief mechanism, venting over-pressurization within the cylinder to prevent catastrophic failure. Inspecting the rupture disc should be an integral part of the cylinder management process. Check for:

- **Stamped numbers:** Numbers stamped directly onto or near the rupture disc can provide important details about its specifications, particularly its set burst pressure. This pressure indicates the threshold at which the disc is designed to rupture, providing an emergency release. Ensuring this number aligns with the cylinder's rated pressure, as outlined in regulations like OSHA 29 CFR 1910.101, is essential for maintaining safety.

- **Lead filings:** For cylinders containing flammable contents, a small lead filing might be present inside the rupture disc. This filing melts and allows gas to escape in the event of a fire, ensuring that the cylinder does not rupture violently due to the increased internal pressure caused by the heat. Recognizing the presence or absence of this filing can provide insights into the cylinder's contents and the associated risks, assisting handlers in taking appropriate precautions.

5. Stamped Dates and Symbols

The stamped dates and specific symbols on a compressed gas cylinder offer key insights into its testing, capabilities, and specifications. These include:

- **Stamped dates (MM – YY):** The month and year stamped on the cylinder indicate the most recent test or inspection date. Regular testing ensures the cylinder's structural integrity and its capability to safely hold its contents under pressure. Adhering to these test intervals is in line with safety guidelines provided by OSHA's 29 CFR 1910.101.

- **Plus sign (+):** If a '+' is stamped on the cylinder, it signifies that the cylinder is designed to accommodate overfilling up to a specific percentage beyond its nominal fill capacity. While this provides some flexibility, handlers must recognize the limits and implications of this marking to prevent dangerous over-pressurization.

- **Asterisk (*):** A cylinder bearing an asterisk indicates that it qualifies for a 10-year retest interval, rather than the standard shorter periods. This longer interval might be due to specific construction materials or design factors that grant the cylinder extended durability and reliability.

- **Ultra-sonic testing (UT) marking:** The presence of the letters "UT" denotes that the cylinder underwent ultrasonic testing instead of the more traditional hydrostatic testing. Ultrasonic testing is a non-destructive method that checks for internal and external flaws without the need to fill the cylinder with water, offering advantages in certain contexts.

6. Batch Numbers

Always note the batch number, typically found on the cylinder's batch sticker, when receiving or using compressed gas cylinders. This unique identifier ensures traceability, aids in quality control, and is necessary for addressing recalls or concerns about a specific production run. Regularly updating records enhances safety and operational accuracy.

7. Radio-Frequency Identification (RFID) Technology

RFID tags offer an advanced method of cylinder identification, storing more data than traditional barcodes. These tags provide rapid access to essential information, enhancing the efficiency and safety of cylinder handling. Furthermore, their resilience in harsh environments ensures consistent readability, reducing potential errors during the identification process.

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Cylinder Inventory Worksheet

At JSCGS we understand that our clients have other priorities aside from dealing with orphaned compressed gas cylinders that end up in their yard. We created this inventory worksheet to make the cylinder inventory process as painless as possible. Please see below for pictures of cylinders commonly found in the Metals Recycling and Waste Management Industries as reference and details on how we categorize cylinders (Standard, Small, Large) and email a picture of this completed form along with pictures of the cylinders if possible to Sales@JetStreamCGS.com for a “no pressure” estimate.

Cylinder Type									
	Propane	Refrigerants	Acetylene	Oxygen	Fire Extinguishers	Nitrogen	CO_2	CNG	High Pressure Unknowns
CYLINDER SIZE	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT
Small									
Standard									
Large									
Total count									

Standard cylinders include, but are not limited to:
- Oxygen, nitrogen, refrigerants, carbon dioxide and nitrous oxide tanks
- Propane tanks < 50 lbs.
- Acetylene tanks
- Breathing air (SCUBA) tanks,
- Accumulators
- Commercial fire extinguishers

Small cylinders include, but are not limited to:
- Helium tanks,
- Propane tanks (camping) < 11 lbs.
- Household fire extinguishers

Large cylinders include, but are not limited to:
- Propane tanks > 50 lbs.
- CNGs

EXAMPLES

Propane

Refrigerants

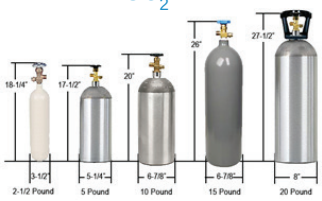
Acetylene

Oxygen

Fire Extinguishers

Nitrogen

Co_2



CNG

High Pressure Unknowns