

Gas cylinders

Gas cylinder stamping(markings) information: All are printed on cylinder metal

- 1- Cylinder number
- 2- Identification mark
- 3- Manufacturer name
- 4- Owner name
- 5- Maximum filling pressure or weight
- 6- Container material
- 7- Wall thickness
- 8- Year of first examined
- 9- Capacity of the cylinder
- 10- Weight of empty cylinder

Rules for handling and storage of cylinders:

- 1- No unauthorized changing of markings
- 2- Markings must be readable
- 3- Full and empty cylinders should be labeled properly
- 4- Flammable or poisonous contents should be labeled
- 5- Prevent contact of grease and oil with cylinder, valves, gauges and hoses
- 6- Try soap and water to check leaks
- 7- No open flames
- 8- Regulators and other tubes for specific gas should not be used for other gas
- 9- Cylinder valve should be opened fully when in use and well closed when not.
- 10- Cylinders should not be subjected to excessive temperature.
- 11- No repair by unauthorized person
- 12- Protection cap should be on when moving or storing
- 13- Dropping of cylinders is dangerous
- 14- Gas cylinders should not be filled with other gases
- 15- Assign a specific area which is dry, cool and well ventilated for storage
- 16- Small cylinders are stored in horizontal position
- 17- Large cylinders are stored in upright position

Methods of use:

- 1- Never use without pressure regulator
- 2- Before attach regulator, open the cylinder momentarily just to remove dirt
- 3- No excessive force or improper tool to close or open the cylinder valve
- 4- Do not remove washers
- 5- Open the cylinder gently to avoid ignition of gas due to recompression in the regulator and close it well before disconnection

Gases in liquified form: N₂O(blue), Cyclopropane(orange), CO₂(gray)

Gases in nonliquified form: O₂(green or black with white neck), Helium(brown)

Pressure gauge can not tell if the liquefied gas cylinders are empty or full. To know that you should weight the cylinder.

Gas laws:

- Boyle law: At constant temperature, the volume of gas varies inversely with pressure.
- Charle law: At constant pressure, the volume of gas varies directly with its absolute temperature
- Dalton law of partial pressure: The pressure exerted by a mixture of non-reacting gases is equal to the sum of the partial pressure of each
- Henry law of solution of gases: At constant temperature, the solubility of a gas in a liquid is proportional to the partial pressure of the gas
- Graham law of gas diffusion: The rate of diffusion of a gas through porous membrane is inversely proportional to the square root of the molecular weight
- Avogadro law: At the same temperature and pressure, equal volumes of a gas contain equal number of molecules
- Venturi principle: The lateral pressure exerted by a liquid (or gas) going through a tube of varying diameter is greatest at the widest portion; here the velocity is least. Pressure is least at the narrowest part where velocity is greatest.
- Bernoulli theorem: The lateral pressure exerted by a liquid is least where the velocity is greatest

Read about MAC value

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