

Chlorine

Cl₂

Chlorine is a heavy, greenish-yellow gas with a pungent and suffocating odor. It is highly reactive, but nonflammable, and is supplied commercially as an amber-colored liquid under pressure (compressed gas). Georgia Gulf manufactures chlorine by the electrolysis of salt brine at our plant in Plaquemine, Louisiana. It meets the analytical specifications of the American Waterworks Association B-301, Food Chemical Codes, Water Chemical Codex and is registered with the U.S. Environmental Protection Agency (FIFRA 58687-1).

Properties

Molecular weight	70.9
Boiling point, °C	-34.5
°F	-30.3
Specific gravity of gas @00(2, 1 atm (air=1))	2.49
Specific gravity of liquid @ 20 °C (68 °F)	1.41
Vapor pressure, psig @ 0 °C (32°F)	38.0
psig @ 20 °C (68°F)	81.9
psig @ 37.8 °C (100°F)	100.0
Density, lb/ft ³ @ 0°C (32°F)	91.60
lb/ft ³ @ 15.6°C (60°F)	88.7
lb/ft ³ @ 26.7°C (80°F)	86.64
Solubility, g/1 in water @ 20°C (68°F)	7.30

Typical Analysis

Chlorine as Cl ₂ , vol. %	99.5
	GG-CC-50
Non-volatile matter, ppm	10-50
	ASTM E-410
Water, ppm	20-40
	ASTM E-410

Uses

The largest use for chlorine is in the manufacture of chemicals and plastics such as vinyl chloride, which is a starting material for polyvinyl chloride. Other chlorinated chemicals, such as hydrochloric acid, ethylene dichloride, trichloroethylene, methyl chloroform and chlorofluorinated hydrocarbons, serve as raw materials or intermediates for many products including drycleaning solvents, refrigerants, aerosol propellants and medicines. Chlorine also finds uses in the pulp and paper industry as well as being used for water and wastewater treatments.

Handling and Storage

Dry chlorine may be handled in a wide variety of materials, but moist chlorine is extremely corrosive due to the formation of hydrochloric acid. All chlorine process equipment including pipes, valves and containers should be kept dry. Steel and iron in contact with chlorine may not be heated, welded or flame cut as iron will ignite and burn in a chlorine atmosphere at 251°C (484°F).

Chlorine is an oxidizer, and violent reactions may occur when it comes in contact with the following materials: hydrogen, ammonia, acetylene, fuel gases, ether, turpentine, most hydrocarbons, finely divided metals, organic matter and any other easily oxidizable materials.

Chlorine storage should be isolated from work areas and protected from flames, heat, corrosion and mechanical damage. Inside storage should be in a cool, dry, well-ventilated place with two planned exits. Outside storage should be sheltered from direct rays of the sun unless the container is properly insulated. Local and federal regulations as well as insurance codes must be considered whenever chlorine is stored, used or handled.

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IMPORTANT: The technical data herein is believed to be accurate. It is offered for your consideration investigation and verification. Buyer assumes all risk of use, storage and handling of the product.

No warranty, expressed or implied, is made including, but not limited to, implied warranties of merchantability and fitness for a particular purpose.

Nothing contained herein shall be construed as a license to operate under, or recommendation to infringe, any patents.

Although chlorine itself is non-combustible in air, most combustible materials will burn in chlorine as they do in oxygen. Flammable gases and vapors will form explosive mixtures with chlorine. In case of fire, use water to keep exposed chlorine containers cool. Most chlorine containers are equipped with valves having fusible plugs that will melt at approximately 69°C (156°F) to prevent the container from rupturing. Higher temperatures should be avoided.

Chlorine spills may need to be reported to the National Response Center (800-424-8802). Disposal of spill material should be in compliance with local, state and federal regulations.

More information on the safe handling of chlorine is in the Material Safety Data Sheet available from Georgia Gulf.

Shipping

Georgia Gulf ships chlorine in tank cars as a liquid under pressure. Because of the potential danger of excessive hydrostatic pressure, containers are only partially filled, leaving sufficient space to act as an expansion chamber. Chlorine is shipped from our plant in Plaquemine, Louisiana.

The Department of Transportation (DOT) regulates the shipment of chlorine, and information concerning placarding and reportable quantity requirements for any quantity of shipment is available from the DOT Materials Transportation Bureau or from Georgia Gulf.

Chlorine is classified by the DOT as a nonflammable gas; its Hazardous Material Identification number is UN 1017. Any signs of leaking product during shipping or unloading should be given prompt attention. In case of emergency, contact CHEMTREC at 800-424-9300.

Sales and Service

Competent sales personnel are available to help meet your needs with Georgia Gulf chemicals.