

TECHNICAL DATA SHEET

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|---|--|---------------------------|------------------------------|-------------|---------------------------|
| PRODUCT NAME | LIQUID CHLORINE (Cl₂) | | | | |
| PHYSICAL DESCRIPTION | <p>In its gaseous state, it is greenish-yellow, has a pungent and irritating odor, and is slightly soluble in water. Under normal conditions, its volumetric ratio (gas chlorine/liquid chlorine) is 457.6. In its liquid state, it is amber in color. Inside a sealed container under pressure, chlorine is in liquid form; when the valve is opened, it undergoes decompression and becomes gaseous. Below 0°C, the density of liquid chlorine is 1.5 times the density of water. It is highly reactive. Gaseous or liquid chlorine is neither explosive nor flammable, but in the presence of hydrogen, ammonia, or gaseous hydrocarbons, it can form explosive mixtures. It hydrolyzes with water, producing hydrochloric and hypochlorous acids.</p> | | | | |
| MAIN INGREDIENTS | Chlorine. | | | | |
| CONTROL SPECIFICATIONS | FEATURE | UNITS | SPECIFICATION | | ANALYSIS TECHNIQUE |
| | | | Min | Max | |
| | Purity | %v/v of Cl ₂ | 99.5 | N/A | Gas Chromatography |
| | Humidity | mg/kg | N/A | 150 | Gravimetry |
| | Non-Volatile Waste | mg/kg | N/A | 150 | Gravimetry |
| | Nitrogen Trichloride | mg/kg | N/A | 5 | Ion Selective |
| | Heavy Metals | mg/kg of Pb | N/A | 30 | ICP OES Axial |
| | Lead | mg/kg of Pb | N/A | 10 | ICP OES Axial |
| | Mercury | mg/kg Hg | N/A | 1 | ICP OES Axial |
| | Arsenic | mg/kg of As | N/A | 3 | ICP OES Axial |
| | NOTE: The carbon tetrachloride and trihalomethane tests do not apply, because our production process does not use washing systems with carbon tetrachloride, chloroform, or use them as diluents for nitrogen trichloride. | | | | |
| MAXIMUM PERMITTED USE | The maximum permitted use for water treatment is 30 mg/L | | | | |
| PACKAGING AND PRESENTATIONS | PACKAGED QUANTITY | PACKAGING MATERIAL | PRESENTATION | | |
| | Cylinders | Seamless carbon steel | Cylinders x 45, 60 and 68 kg | | |
| | Containers | Seamless carbon steel | Containers x 900 and 1000 kg | | |
| | Isotank | Seamless carbon steel | 22000 kg | | |
| SHELF LIFE | It has no shelf life when stored under suitable conditions. | | | | |
| LOT IDENTIFICATION | <p>The batch code corresponds to the traceability information according to: Production Location-Plant-Year-Julian Day-Shift. For example, for coding in the system, the batch will be recorded down to the shift, with a maximum of seven alphanumeric characters. This code will begin with the letter "L", which identifies the production location (Colombia - Betania), followed by the letter "Q", which corresponds to the Chemicals plant. Next, the digit "5", corresponding to the year 2025, will be included, followed by the Julian day and the manufacturing shift.</p> | | | | |
| | Lote | Planta | Año | Día Juliano | Turno |
| | L | Q | 5 | 288 | 1 |
| APPLICABLE LEGISLATION | NTC 925 / NTC 5435 / NTC 2880 / AWWA B301-18 / Decree 1496 of 2018 and its amendment Resolution 773 of 2021. | | | | |
| USES AND INSTRUCTIONS | <p>Main uses: SANITARY: Treatment of wastewater, industrial water, drinking water, and swimming pool water; bacteriological control in grain milling and storage processes. CHEMICAL: Synthesis of hydrochloric acid, production of sodium and calcium hypochlorites, and metallic chlorides such as aluminum, silver, boron, copper, manganese, lead, platinum, tin, zinc, zirconium, silicon tetrachloride, phosphorus trichloride, phosphorus oxychloride, and phosphorus pentachloride. It is mainly used in the production of: SOLVENTS AND CLEANERS: Trichloroethylene, perchloroethylene, carbon tetrachloride, chloroform, DDT, vinyl chloride, methyl chloride. HERBICIDES AND INSECTICIDES: Chlorobenzenes, chlorophenols, oxychlorides. COOLANTS: Chloromethanes, ethylene glycols. PLASTICS: Vinyls, chlorofluorinated plastics.</p> | | | | |
| STORAGE CONDITIONS | <p>It is essential that the area designated for this purpose has adequate and increased natural ventilation at floor level because chlorine is heavier than air. Chlorine should not be stored underground or exposed to direct sunlight or heat sources. The area must be separate from the other factory buildings. It should not be stored with other products; consult the chemical compatibility matrix. FACILITIES: Construct them with non-combustible materials and protect them with thermal insulation; the floor must be waterproof and non-combustible. Electrical, mechanical, plumbing, and industrial safety installations, which are manually operated, will be located outside the area. AUXILIARY FACILITIES: Forced ventilation system, automatic water cooling, alkaline neutralization, and rapid evacuation of chlorine containers. Emergency absorption systems in case of leaks.</p> | | | | |
| HANDLING AND TRANSPORT | <p>For all chlorine handling operations, the following instructions are recommended: - Good local ventilation. - Avoid overheating the product. - Do not strike the containers or make sudden movements during handling and transport. - Verify the presence of the safety cap on the valves. - Chlorine producers, packagers, and users must have approved emergency kits (kits A, B, and C) for containers used in their processes available at their facilities, in addition to half-face respirators with inorganic gas filters, full-face respirators, and self-contained breathing apparatus. Work at temperatures below 40°C. When transporting cylinders, they must always be placed in a vertical position on appropriate surfaces that prevent slipping. The vehicle must be equipped with hydraulic systems for safe unloading. 900 kg and 1000 kg containers must be transported on platforms with a wedge system and must be placed in a horizontal position. Transporting chlorine with other chemicals is not recommended. The transport of chlorine in 22000 kg isotanks must be done in tractor-trailer trucks, preferably low bed.</p> | | | | |
| PRECAUTIONS AND RESTRICTIONS | <p>Chlorine gas is an irritant and an asphyxiant. The maximum recommended concentration for continuous use for 8 hours is 0.1 ppm. It is recommended to consult the BRINSA SA Safety Data Sheet. NOTE: The final use of the product is the sole responsibility and accepted by the customer. The information provided is for illustrative purposes only and does not replace patents or licenses regarding the use of the product. For more information, refer to the Safety Data Sheet.</p> | | | | |
| ADDITIONAL INFORMATION FROM THE MANUFACTURER | <p>EMERGENCY ATTENTION. Tel: (601) 8833555 Ext. 444 Cell: 3158965370-3102943054 Betania Plant: km. 6 via Cajicá - Zipaquirá Tels: (601) 8833555 Fax: (601) 8793602 Medellín Office Tels: (604) 335 50 60 Ext. 1108 Brinsa SA Nit: 800-221-789-2 AA 3005 Bogotá, DC Colombia - South America</p> | | | | |