

ELEMENTS OF INDUSTRIAL TOXICOLOGY

TABLE 40-D. ALKALI EQUIVALENTS

Chlorine Container (lbs net)	100% Caustic Soda (lbs)	Water (gal)	Soda Ash (lbs)	Water (gal)	Hydrated Lime (lbs)	Water (gal)
100	125	40	300	100	125	125
150	188	60	450	150	188	188
2000	2500	800	6000	2000	2500	2500

Chlorine dioxide is used as a bleaching agent and for odor control. It is liberated from acid solutions of sodium chlorite and from reactions of sulfur dioxide with sodium chlorate in acid solutions. Dangerous concentrations are detectable by its strong, unpleasant odor, chlorine dioxide is a greenish-yellow gas, which decomposes in sunlight.

It is a strong respiratory and eye irritant. Acute inhalation exposures cause bronchitis and pulmonary edema, accompanied by delayed symptoms and slow recovery. Repeated acute exposures give symptoms including coughing, wheezing, respiratory distress, nasal discharge, and eye and throat irritation.

See Industrial Data Sheet 525 and *Hygienic Guide*.

Chloroacetic acids are similar to acetic acid in their general properties but are stronger. Their strength increases with increasing amounts of chlorine in the molecules. Trichloroacetic acid is nearly as strong as the mineral acids and is extremely corrosive to the skin.

Chlorobenzene (phenyl chloride) has only recently been used in great quantities in industry, and only a few cases of poisoning have been reported. It is a strong narcotic and a paralyzing poison of the nervous system.

Some of the signs of acute poisoning are sleepiness, tremors and muscular spasms, frequently blue lips, fingertips, and ears, and red to chocolate-brown urine. If the liquid has been swallowed, an emetic such as soapy water should be given and the person should be kept warm. Mild stimulants may be given, and oxygen or a mixture of oxygen and carbon dioxide should be provided. Un-

der no circumstances should alcohol, fats, or oils be given. The first aid for poisoning by inhalation of the vapor is the same, except that no emetic need be given. These cases should invariably be put under the care of a physician.

Chlorobenzene should be handled only under efficient local exhaust hoods or, if the chemical must be exposed to the air, with supplied air respiratory equipment. Protective clothing should be supplied to prevent skin contact with the material. It is absorbed through the intact skin and produces skin affections.

Chlorobromomethane (bromochloromethane, methylene chlorobromide) is a halogenated hydrocarbon used as fire-extinguishing agent, solvent, and refrigerant. Knowledge of its toxic effects is limited. Anesthesia and liver damage may result from acute exposures. Chronic exposures may cause only slight liver damage. Chlorobromomethane also appears to hydrolyze to inorganic bromides in the blood.

The compound has a low oral toxicity, is slightly irritating to the eyes, and, although not readily absorbed, has a defatting action on the skin.

See *Hygienic Guide*.

Chlorodiphenyl—see Chlorowaxes.

Chloroform—see Halogenated hydrocarbons.

p-Chloronitrobenzene is used as an intermediate in chemical synthesis. It alters the blood hemoglobin and produces anemia in experimental animals, as is typical of aromatic amino and nitro compounds.

Chlorosulfonic acid is a strong acid which