



**Oakland County Medical Control Authority
Special Operations Protocols
Hazardous Materials Medical Response Team
Chlorine and Related Compounds**

Initial Date: September 2022
Revised Date: 9/14/2023

Section 10.103

***This Protocol is intended for use by a Hazardous Materials Response Team.
Chlorine and Related Compounds***

FORMS: Found in liquid and gaseous forms. Colorless to amber-colored liquid, and greenish-yellow gas with a characteristic odor. Some solid compounds may generate chlorine when in contact with water. Phosgene (COCl₂) and Nitrogen Dioxide (NO₂) are related compounds.

THERMAL DECOMPOSITION PRODUCTS: Reacts with water to form hydrochloric and hypochlorous acid. Chlorine reacts with carbon monoxide to form phosgene. Slightly water-soluble toxicants Phosgene (COCl₂) and Nitrogen Dioxide (NO₂) may produce prolonged exposure. Toxic substances are formed when combustibles burn in chlorine.

ROUTES OF EXPOSURE: Skin and eye, inhalation, ingestion

TARGET ORGANS: *Primary* - Skin, eyes, respiratory system
Secondary - Central nervous system, cardiovascular system, gastrointestinal system, renal, hepatic, metabolism

LIFE THREAT: Severe respiratory tract irritant that may cause pulmonary edema. Skin, eye and mucous membranes irritant. Patients may have delayed life-threatening symptoms (Chlorine or Phosgene).

SIGNS AND SYMPTOMS:

CNS: Decreased level of consciousness to coma.
Headache and dizziness.

Eye: Chemical conjunctivitis with lacrimation. Severe and painful irritation and burns.

Cardiovascular: Cardiovascular collapse and possible ventricular arrhythmias.

Respiratory: Acute or delayed non cardiogenic pulmonary edema,

MCA Name: Oakland County
MCA Board Approval Date: October 6, 2023
MCA Implementation Date: February 1, 2024
MDHHS Approval Date: 10/12/2023

Page 1 of 2



**Oakland County Medical Control Authority
Special Operations Protocols
Hazardous Materials Medical Response Team
Chlorine and Related Compounds**

Initial Date: September 2022
Revised Date: 9/14/2023

Section 10.103

dyspnea and tachypnea. Upper airway irritation and burns to the mucous membranes and lungs. Cough, choking or burning sensation, rhinitis, sinusitis, rhinorrhea, pneumonitis and pneumonia.

Gastrointestinal: Nausea and vomiting

Skin: Irritation and chemical burns. Cyanosis. Possible frostbite secondary to exposure to expanding gas.

Renal: Kidney damage

Hepatic: Liver damage

Other: Metabolic acidosis

Pre-Medical Control

PARAMEDIC

1. Follow **10.100 General HAZMAT Treatment** protocol.
2. Follow **10.105 HAZMAT Eye Irrigation** protocol as indicated.
3. Follow **7.9 Airway Management Procedure** as indicated.
4. For Bronchospasm administer Albuterol 2.5 mg/3 ml NS nebulized.
5. For other respiratory symptoms (burning sensation) administer 5 ml NS nebulized.
6. If the other respiratory symptoms persist, administer 5 ml ½ strength Sodium Bicarbonate (2.5 ml Sodium Bicarbonate (1 meq/ml) mixed with 2.5 ml Sterile Water) nebulized.
7. Consider CPAP.