



Great Lakes
Chemical Corporation

777
MATERIAL SAFETY DATA SHEET

MSDS Number: 00025
Product Name: Chlor-O-Pic and Chloropicrin
(Trichloronitromethane)

Effective Date: 4/15/98
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SECTION I - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name:	Chlor-O-Pic and Chloropicrin (Trichloronitromethane)		
Manufacturer:	Great Lakes Chemical Corporation		
Address:	P.O. Box 2200		
City:	West Lafayette		
State:	Indiana		
Zip:	47996-2200		
Emergency Telephone Number:	1-800-949-5167		
Information			
Telephone Number:	1-765-497-6100	Fax:	1-765-497-6123
Chemtrec Phone:	1-800-424-9300		
Effective Date:	4/15/98		
Supercede Date:	6/23/97		
MSDS Prepared By:	Regulatory Affairs Department/Great Lakes Chemical Corporation		
Synonyms:	Trichloronitromethane		
Product Use:	EPA Registered Pesticide, Warning Agent		
Chemical Name:	Chloropicrin		
Chemical Family:	Halonitroalkane		

Additional Information

No information available

SECTION II - COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS No.	%	EXPOSURE LIMITS
Chloropicrin	76062	99	Y (Hazardous) 0.1 ppm (OSHA PEL TWA) Not established (OSHA PEL STEL) Not established (OSHA PEL CEIL) 0.1 ppm (ACGIH TLV TWA) Not established (ACGIH TLV STEL) Not established (ACGIH TLV CEIL)

*Mixture. Indented chemicals components of mixture.

Additional Information

OSHA IDHL = 4 ppm
NIOSH REL = 0.1 ppm
EPA Fumigation Limit = 0.1 ppm

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SECTION III - HAZARDS IDENTIFICATION

Emergency Overview:

Colorless liquid
Intensely irritating tear gas odor
Highly toxic. May be fatal if inhaled.
Toxic. Harmful if swallowed.
Corrosive to eyes.
Corrosive to skin.
Causes severe respiratory tract, nose and throat irritation.
Mutagen
May cause heart effects.
Long term overexposure may cause liver effects.
Long term overexposure may cause stomach effects.
Bulk containers of chloropicrin are shock sensitive and can detonate.
Chloropicrin is not flammable, but may explode when involved in fires.

Relevant Routes of

Exposure:

Ingestion, inhalation and skin absorption

Signs and Symptoms of Overexposure:

Chloropicrin is a powerful irritant with effects observed on all body surfaces. Liquid chloropicrin is corrosive to skin. It causes severe watering of the eyes, shortness of breath (pulmonary edema), dizziness, nausea and vomiting. Severe exposure may cause weak and irregular heartbeat, asthmatic attack and may be fatal. Skin wounds exposed to chloropicrin become septic.

Medical Conditions

Generally Aggravated By Exposure:

Dermatitis
Respiratory disorders

Potential Health Effects:

See Section XI for additional information.

Eyes:

Corrosive to the eyes. May cause chemical burns.
Prolonged eye exposure may result in blindness.

Skin:

Corrosive to skin. May cause chemical burns.

Ingestion:

Toxic. May be harmful if swallowed.

Inhalation:

Causes severe mucous membrane and respiratory tract irritation.

Can cause weak and irregular heartbeat.

Carcinogenicity:

NTP:

No

IARC:

No

OSHA:

No

ACGIH:

No

OTHER:

No

Additional Information

No information available

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SECTION IV - FIRST AID MEASURES

Eyes:	In all cases of overexposure, get medical attention immediately. Take person to a doctor or emergency treatment facility. If in eyes, hold eyelids open and flush with steady gentle stream of water for at least 15 minutes.
Skin:	In all cases of overexposure, get medical attention immediately. Take person to a doctor or emergency treatment facility. If on skin, immediately remove contaminated clothing, shoes, and other items covering skin. Wash contaminated skin area thoroughly with soap and water.
Ingestion:	In all cases of overexposure, get medical attention immediately. Take person to a doctor or emergency treatment facility. Do not give anything by mouth to an unconscious person.
Inhalation:	In all cases of overexposure, get medical attention immediately. Take person to a doctor or emergency treatment facility. If inhaled, get exposed person to fresh air. Keep warm. Make sure person can breathe freely. If breathing has stopped, give artificial respiration, preferably mouth-to-mouth.
Antidotes:	No information available
Notes to Physicians and/or Protection for First-Aiders:	No information available

Additional Information

No information available

SECTION V - FIRE FIGHTING MEASURES

Flammable Limits in Air (% by Volume):	Not available
Flash Point:	Not combustible
Autoignition Temperature:	Not available
Extinguishing Media:	All conventional media are suitable.
Fire Fighting Instructions:	Wear a self-contained breathing apparatus and protective clothing to prevent skin and eye contact in fire situations.
Unusual Fire and Explosion Hazards:	Under fire conditions, toxic and irritating fumes may be emitted. Containers can explode in fire situations. Use water spray to cool containers exposed to heat. Heated material decomposes violently at 112 degrees C to severely toxic gases, especially in contact with metals.
Flammability Classification:	Non-combustible liquid
Known or Anticipated Hazardous Products of Combustion:	Hydrogen chloride and/or chlorine Oxides of nitrogen Phosgene Carbon monoxide and carbon dioxide

Additional Information

No information available

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SECTION VI - ACCIDENTAL RELEASE MEASURES

Accidental Release Measures:

Evacuate immediate area of spill or leak. Use a NIOSH/MSHA approved self-contained breathing apparatus and other appropriate personal protective equipment for entry into affected area to correct problem. Move leaking or damaged containers outdoors or to an isolated location, observing strict safety precautions. Work upwind if possible. Allow spilled material to evaporate or absorb onto vermiculite, dry sand, earth or similar absorbent material which may be disposed of on site, or at an approved disposal facility. Do not permit entry into spill area or cleanup area by unprotected persons until concentration of chloropicrin is determined to be less than 0.1 ppm.

Personal Precautions:

See Section VIII.

Environmental Precautions:

No information available

Additional Information

A 5% sodium bisulfate solution may be used to wash spill area after pickup is complete to neutralize remaining chloropicrin. Collect all rinsate for proper disposal.

SECTION VII - HANDLING AND STORAGE

Handling:

Persons moving or handling containers should wear protective clothing. Open container only in a well-ventilated area wearing protective clothing and respiratory protection if necessary. Avoid eye, skin and clothing contact. Do not breathe mist or vapor.

Storage:

Store upright in a cool, dry, well-ventilated area under lock and key. Post as a pesticide storage area. Keep away from direct sunlight. Store away from heat, sparks, and flame. Keep container tightly closed.

Other Precautions:

Do not contaminate water, food, or feed by storage or disposal.

Additional Information

No information available

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

No information available

Ventilation Requirements:

Use to keep levels below established threshold values.
Use mechanical ventilation for general area control.

Personal Protective Equipment:

Eye/Face Protection:

Full face shield or safety glasses with brow and temple shields.
Do NOT wear goggles.

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SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Skin Protection:

Do not use gloves.

Loose-fitting or well ventilated long-sleeved shirt and pants. Shoes and socks. Do NOT wear jewelry, gloves, tight clothing, rubber protective clothing, or rubber boots when handling.

Respiratory Protection:

If the air concentration level of chloropicrin exceeds 0.1 ppm at any time, all persons must wear a respirator with an organic-vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C) or a respirator with a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G).

If the air concentration level of chloropicrin exceeds 4 ppm at any time, all persons must wear a supplied-air respirator (MSHA/NIOSH) approval number prefix TC-19C) or a self-contained breathing apparatus (SCBA) (MSHA/NIOSH approval number prefix TC-13F).

Consult the OSHA respiratory protection information located at 29CFR 1910.134 and the American National Standard Institute's Practices of Respiratory Protection Z88.2.

Other Protective Clothing or Equipment:

Measure chloropicrin concentration with a Matheson-Kitagawa detection device using tube 172.

Exposure Guidelines:

See Section II.

Work Hygienic Practices:

Make sure piping is empty before doing maintenance work. Do not use water to clean equipment. Flush with kerosene or fuel oil. All persons working with chloropicrin should be trained in the hazards, use of required respirator equipment and detector equipment, emergency procedures and in the proper use of chloropicrin as a fumigant when applicable.

Additional Information

No information available

SECTION IX - PHYSICAL & CHEMICAL PROPERTIES

Appearance:

Colorless liquid

Boiling Point:

233.6 degrees F, 112 degrees C

Bulk Density:

Not available

Color:

Colorless

Decomposition

Temperature:

Not available

Evaporation Rate:

Not available

Freezing Point:

Not available

Heat Value:

Not available

Melting Point:

-83 degrees F, -64 degrees C

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SECTION IX - PHYSICAL & CHEMICAL PROPERTIES**Molecular/Chemical**

Formula:	CCl3NO2
Molecular Weight:	NA
Octanol/Water Partition Coefficient:	Not available
Odor:	Intensely irritating tear gas odor
Odor Threshold:	Not available
Particle Size:	Not available
Percent Volatile:	Not available
pH Value:	Not available
pH Concentration:	Not available
Physical State:	Liquid
Reactivity in Water:	Not water reactive
Saturated Vapor Concentration:	Not available
Softening Point:	Not available
Solubility in Water:	0.2 g per 100 g of water
Specific Gravity or Density (Water=1):	1.66
Vapor Density:	~5.7
Vapor Pressure:	18.3 mmHg at 20 degrees C
Viscosity:	Not available
Volatile Organic Compounds:	Not available
Water/Oil Distribution Coefficient:	Not available
Weight Per Gallon:	Not available

Additional Information

No information available

SECTION X - STABILITY AND REACTIVITY

Stability:	Bulk containers are shock sensitive and can detonate, especially when heat is available for initiation. Photodegradation producing phogene is possible. However, under ambient room light chloropicrin is stable to photodegradation.
Conditions to Avoid:	Unstable under fire and extreme heat conditions. Avoid direct sunlight.
Incompatibility With Other Materials:	Organic amines Reducing agents Sulfuric acid Incompatible with containers or equipment made of aluminum, magnesium or their alloys. Aniline 3-Bromopropyne Propargyl bromide

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SECTION X - STABILITY AND REACTIVITY**Hazardous Decomposition****Products:**Sodium methoxide
Sodium hydroxide/alcohol solutions

Thermal decomposition may produce the following:

Hydrogen chloride and/or chlorine

Oxides of nitrogen

Phosgene

Carbon monoxide and carbon dioxide

Hazardous Polymerization:

Will not occur

Conditions to Avoid:

None

Additional Information

No information available

SECTION XI - TOXICOLOGICAL INFORMATION

VALUE (LD50 OR LC50)	ANIMAL	ROUTES	COMPONENTS
150 ppm/15 minutes	Rabbit	Acute Inhalation	Chloropicrin
11.9 ppm/4H	Rat	Acute Inhalation	Chloropicrin
250 mg/kg	Rat	Acute Oral	Chloropicrin

Toxicological Information:

Mutagenic in the Ames test.

The inhalation LCLO for cats, rabbits and guinea pigs is 120 ppm for 20 minutes. The intraperitoneal LD50 in the mouse is 25 mg/kg. The intravenous LD50 in the guinea pig is 4.2 mg/kg. The human TCLO is 298 ppm for 10 minutes. The oral TDLO in the mouse is 26,000 mg/kg/78 weeks.

In a two year oral chronic toxicity study in rats, at concentrations of 0.1, 1.0 and 10.0 mg/kg/day, hepatocyte vacuolation was noted at all dose levels. In the 1.0 and 10.0 mg/kg/day dose levels epithelial hyperkeratosis of the nonglandular stomach was noted in both males and females. A NOAEL was determined to be 0.1 mg/kg/day.

Additional Information

No information available

SECTION XII - ECOLOGICAL INFORMATION**Ecological Information:**

Chloropicrin will decompose in the environment. The photodegradation half life is 20 days. Bioaccumulation in fish is not expected. Acutely toxic to animals, plants and aquatic organisms. Do not release to the environment.

Additional Information

No information available

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SECTION XIII - DISPOSAL CONSIDERATIONS

Disposal Considerations: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Additional Information

Return empty cylinders freight collect to the Great Lakes Chemical Corporation location from which shipment was made. Close cylinder valve by turning clockwise until hand tight. Disconnect lines. Replace safety caps and bonnet. Return partial cylinders only after consulting Great Lakes Chemical Corporation for proper shipping instructions.

SECTION XIV - TRANSPORT INFORMATION

U.S. DOT

Proper Shipping Name: Chloropicrin
Hazard Class: 6.1
ID Number: UN1580
Packing Group: I
Labels: Poison
Special Provisions: 2, B7, B9, B14, B32, B46, B74, T38, T43, T45
Packaging Exceptions: None
Non-Bulk Packaging: 227
Bulk Packaging: 244
Passenger Air/Rail Limit: Forbidden
Air Cargo Limit: Forbidden
Vessel Stowage: D
Other Stowage: 40
Reportable Quantity: N/A

AIR - ICAO OR IATA

Proper Shipping Name: Forbidden
Hazard Class: N/A
ID Number: N/A
Subsidiary Risk: N/A
Packing Group: N/A
Hazard Labels: N/A
Packing Instructions: N/A
Air Passenger Limit Per Package: N/A
Packing Instruction - Cargo: N/A
Air Cargo Limit Per Package: N/A
Special Provisions Code: N/A

WATER - IMDG

Proper Shipping Name: Chloropicrin
Hazard Class: 6.1
ID Number: UN1580

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SECTION XIV - TRANSPORT INFORMATION

Packing Group: I
Subsidiary Risk: N/A
Medical First Aid Guide
Code: 740

Additional Information

Poison Inhalation Hazard
EmS No. 6.1-02

SECTION XV - REGULATORY INFORMATION

U.S. Federal Regulations: The components of this product are either on the TSCA Inventory or exempt (i.e. impurities, a polymer complying with the exemption rule at 40 CFR 723.250) from the Inventory. These products are offered as EPA registered pesticides.

SARA 313

The following materials are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

State Regulations:

Chloropicrin (De Minimus Concentration = 1%)

New Jersey Right To Know - Yes

Pennsylvania Right To Know - Yes

Massachusetts Right To Know - Yes

California Prop 65 - No

International Regulations:

This material (or each component) is listed on the following inventories:

Canada - DLS

EU - EINECS

Japan - ENCS

Korea - ECL

Canadian Disclosure List (0.1%)

Canadian WHMIS Hazard Class and Division = D.1.a, E, F

SARA Hazards:

Acute:

Yes

Chronic:

Yes

Reactive:

Yes

Fire:

No

Pressure:

No

Additional Information

The above regulatory information represents only selected regulations and is not meant to be a complete list.

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SECTION XVI - OTHER INFORMATION

NFPA Codes:

Health:	4
Flammability:	0
Reactivity:	3
Other:	N

HMIS Codes:

Health:	4
Flammability:	0
Reactivity:	3
Protection:	H

Label Statements: Not available

Other Information: Abbreviations:

(L) = Loose bulk density in g/ml

LOEC = Lowest observed effect concentration

MATC = Maximum acceptable toxicant concentration

NA = Not available

N/A = Not applicable

NL = Not limited

NOEC = No observed effect concentration

NOEL = No observable effect level

NR = Not rated

(P) = Packed bulk density in g/ml

PNOC = Particulates Not Otherwise Classified

PNOR = Particulates Not Otherwise Regulated

REL = Recommended exposure limit

TS = Trade secret

Additional Information

Information on this form is furnished solely for the purpose of compliance with OSHA's Hazard Communication Standard, 29CFR 1910.1200 and The Canadian Environmental Protection Act, Canada Gazette Part II, Vol. 122, No. 2 and shall not be used for any other purpose.

Revision Information:

Section III - Emergency overview

Section XI - Toxicological information