

Reddick Fumigants
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**MATERIAL SAFETY
DATA SHEET**

PRODUCT NAME: PIC-C100, Chloropicrin (Trichloronitromethane)

SECTION I – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: PIC-C100, Chloropicrin, (Trichloronitromethane)
Manufacturer: Niklor Chemical Company, Inc.
Address: 1667 Purdy Road **City:** Mojave
State: California **Zip:** 93501
Emergency Phone Number: (661) 824-2494 (310) 991-2253
Information Telephone Number: (661) 824-2494 **Fax:** (661) 824-2904
Chemtrec Phone: 1-800-424-9300; **Internationally call:** 703-527-3887
Effective Date: 3/24/2005 **Supersede Date:** 3/7/2005
MSDS Prepared By: Reddick Fumigants
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	76-06-2	99 min	Y (Hazardous) 0.1 ppm (OSHA PEL TWA) Not established (OSHA PEL STEL) Not established (OSHA PEL CEIL) 0.1 ppm; A4 (ACGIH TLV TWA) Not established (ACGIH TLV STEL) Not established (ACGIH TLV CEIL)

* Indented chemicals are components of previous ingredient.

Additional Information

Chloropicrin additional limits:
OSHA IDHL = 4 ppm
NIOSH IDLH = 2 ppm
NIOSH REL = 0.1 ppm
EPA Fumigation Limit = 0.1 ppm

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

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SECTION III – HAZARDS IDENTIFICATION (Continued)

May cause heart 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.

Chronic Health Effects: Can cause weak and irregular heartbeat.
Target organs may include the liver, kidneys, lungs, stomach, heart and skeletal muscles.
Metagen
ACGIH has classified chloropicrin as an A4, Not Classifiable as a Human Carcinogen.

<u>Carcinogenicity:</u>			
NTP:	No	ACGIH:	No
IARC:	No	OTHER:	No
OSHA:	No		

Additional Information

No information available.

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.

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SECTION IV – FIRST AID MEASURES (Continued)

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:
Known or Anticipated
Hazardous Products of
Combustion:** Non-combustible liquid.

Hydrogen chloride and/or chlorine
Oxides of nitrogen.
Phosgene
Carbon monoxide and carbon dioxide.

Additional Information

No information available.

SECTION VI – ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Evacuate immediate area of spill or leak. Use a NIOSH/MSHA approved self-contained breathing apparatus (SCBA) 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

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SECTION VI – ACCIDENTAL RELEASE MEASURES (Continued)

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.

Storage:

Do not breathe mist or vapor.
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:

Adequate general ventilation is recommended when handling to control airborne levels.

Ventilation Requirements:

Use local ventilation 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.

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

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SECTION VIII – EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued)

(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	Percent Volatile:	Not Available
Boiling Point:	233.6 degrees F, 112 degrees C	pH Value:	Not Available
Bulk Density:	Not available	pH Concentration:	Not Available
Color:	Colorless	Physical State:	Liquid
Decomposition Temperature:	Not available	Reactivity in Water:	Not water reactive.
Evaporation Rate:	Not available	Saturated Vapor Concentration:	Not available
Freezing Point:	Not available	Softening Point:	Not available
Heat Value:	Not available	Solubility in Water:	0.2 g per 100 g of water
Melting Point:	-83 degrees F, -64 degrees C	Specific Gravity or Density (Water = 1):	1.66
Molecular/Chemical Formula:	CC13NO2	Vapor Density:	~5.7
Molecular Weight:	164.4	Vapor Pressure:	18.3 mmHg at 20 degrees C
Octanol/Water Partition Coefficient:	Not Available	Viscosity:	Not available

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SECTION IX – PHYSICAL & CHEMICAL PROPERTIES (Continued)

Odor:	Intensely irritating tear gas odor	Volatile Organic Compounds:	Not available
Odor Threshold:	1.1 ppm	Water/Oil Distribution Coefficient:	Not available
Particle Size:	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 phosgene 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:	Strong Oxidizers. Organic amines Reducing agents Sulfuric acid Incompatible with containers or equipment made of aluminum, magnesium or their alloys. Aniline 3-Bromopropyne Propargyl bromide Sodium methoxide Sodium hydroxide/alcohol solutions
Hazardous Decomposition Products:	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
4.2 mg / kg	Guinea Pig	Acute Intravenous	Chloropicrin
25 mg / kg	Mouse	Acute Intraperitoneal	Chloropicrin
250 mg / kg	Rat	Acute Oral	Chloropicrin

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SECTION XI - TOXICOLOGICAL INFORMATION (Continued)

Toxicological Information:

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

Chloropicrin is corrosive to the skin and eyes and causes severe mucous membrane and upper respiratory tract irritation. Inhalation can cause weak and irregular heartbeat, as well as ulceration of the olfactory epithelium and necrosis of the lung tissues. Chronic stages of inhalation may produce marked necrosis of the kidney, liver and skeletal muscles.

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. In another 90 day oral study in rats, forestomach inflammation, necrosis, acantholysis, hyperkeratosis and ulceration were also observed. The NOAEL in this study was determined to be 8 mg / kg.

This material was mutagenic in the Ames test. In lymphocyte cells, chloropicrin was found to induce sister chromatid exchanges.

Additional Information

No information available.

SECTION XII - ECOLOGICAL INFORMATION

Ecological Information: LC50 (96 H) Flathead Minnow = 3.72 mg / L
LC50 (96 H) Rainbow trout = 2.87 mg / L
LC50 (96 H) Bluegill = 2.82 mg / L

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.

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 Reddick Fumigants 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 Reddick Fumigants for proper shipping instructions.

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SECTION XIV - TRANSPORT INFORMATION

U.S. DOT

Proper Shipping Name:	Chloropicrin	ID Number:	UN1580
Hazard Class:	6.1	Labels:	Poison, Marine Pollutant
Packing Group:	I	Packaging Exceptions:	None
Special Provisions:	See Below	Bulk Packaging:	244
Non-Bulk Packaging:	227	Air Cargo Limit:	Forbidden
Passenger Air / Rail Limit:	Forbidden	Other Stowage:	40
Vessel Stowage:	D		
Reportable Quantity:	N/A		

AIR - ICAO OR IATA

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

WATER - IMDG

Proper Shipping Name:	Chloropicrin	ID Number:	UN1580
Hazard Class:	6.1	Subsidiary Risk:	N/A
Packing Group:	I		
Medical First Aid Guide Code:	N/A		

Additional Information

DOT Special Provisions: 2, B7, B9, B14, B32, B46, B74, T20, TP2, TP13, TP38, TP45

Poison Inhalation Hazard
EmS No. F-A, S-A
Marine Pollutant

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:
Chloropicrin (De Minimis Concentration = 1%)

State Regulations:

Massachusetts Substance List
New Jersey Right To Know Hazardous Substance List (1% reporting limit)
Pennsylvania Hazardous Substance List (1% reporting limit)

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SECTION XV - REGULATORY INFORMATION (Continued)

International Regulations:

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

Canada – DSL
EU – EINECS
Australia - AICS
Japan – ENCS
Korea – ECL
Philippines - PICCS

Canadian Disclosure List (0.1%) - Chloropicrin
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.

SECTION XVI - OTHER INFORMATION

NFPA Codes:

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

HMIS Codes: *indicates chronic health hazard.

Health:	4*	Flammability:	0
Reactivity:	3	Protection:	X

Label Statements:

Other Information:

Not available
Abbreviations:
(L) = Loose bulk density in g / ml
LOEC = Lowest observed effect concentration
MATC = Maximum acceptable toxicant concentration
NA = Not available
N/A = Not available
NL = Not limited
NOAEL = No observable adverse effect level
NOEC = No observed effect concentration
NOEL = No observable effect level
NR = Not rated
(P) = Packed bulk density in g / ml
PNOR = Particulates Not Otherwise Regulated
PNOS = Particulates Not Otherwise Specified
REL = Recommended exposure limit
TS = Trade secret

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SECTION XVI - OTHER INFORMATION (Continued)
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Additional Information

Information on this form is furnished solely for the purpose of compliance with OSHA's Hazard Communication Standard, 29 CFR 1910.1200 and the Canadian Hazardous Products Act and associated Controlled Products Regulations and shall not be used for any other purpose.

Revision Information:
General Review and Update
Section XIV – Transport Information