Tetranitromethane

sc-253685

Material Safety Data Sheet

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Tetranitromethane

STATEMENT OF HAZARDOUS NATURE
CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA


SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY
ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS
C-N4-O8, C(NO2)4, TNM, "methane, tetranitro-", NCI-C55947, "RCRA Waste No.: P112"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability:	1		
Toxicity:	4		
Body Contact:	2		
Reactivity:	3		
Chronic:	3		

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4

CANADIAN WHMIS SYMBOLS


EMERGENCY OVERVIEW

RISK
Risk of explosion by shock, friction, fire or other sources of ignition.
Toxic if swallowed.
Very toxic by inhalation.
May cause CANCER.
Irritating to eyes, respiratory system and skin.
Very toxic to aquatic organisms.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
■ Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.
■ Single oral doses of tetranitromethane in rats produced dose-related haemoglobinaemia.
Because such a result could not be elicited following intravenous injection it has been suggested biotransformation occurs in the gut catalysed by nitrate reductase.
■ The substance and/or its metabolites may bind to hemoglobin inhibiting normal uptake of oxygen.
This condition, known as "methemoglobinemia", is a form of oxygen starvation (anoxia).

EYE
■ This material can cause eye irritation and damage in some persons.

SKIN
■ This material can cause inflammation of the skin oncontact in some persons.
■ The material may accentuate any pre-existing dermatitis condition.
■ Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
■ Open cuts, abraded or irritated skin should not be exposed to this material.
■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED
■ Inhalation of vapors or aerosols (mists, fumes), generated by the material during the course of normal handling, may produce severely toxic effects; these may be fatal.
■ The material can cause respiratory irritation in some persons.
The body's response to such irritation can cause further lung damage.
■ Workers exposed to unknown concentrations of tetranitromethane complain of ocular and respiratory tract irritation, salivation and coughing.
Bronchopneumonia, pulmonary oedema, and methaemoglobinaemia (cyanosis) have been reported with some fatalities attributed to acute exposures.

CHRONIC HEALTH EFFECTS
■ Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.
There is ample evidence that this material can be regarded as being able to cause cancer in humans based on experiments and other information.
Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
Rat hepatic microsomes catalyse the denitrification of tetranitromethane to nitrite and formaldehyde. Tetranitromethane also inactivates acetylcholine and trypsin in vitro.
Exposure of rats and rats to tetranitromethane produced a dose-related increase in alveolar/ bronchiolar neoplasms. The incidence of neoplasms in low-exposure groups (2 ppm for rats and 0.5 ppm) for mice was 66% and 44% in male and female rats and 54% and 48% in male and female mice. The majority of animals with alveolar/ bronchiolar neoplasms had these diagnosed as carcinomas with frequent metastasis to a variety of organs.
Squamous cell carcinomas of the lungs were also markedly increased in rats exposed at 5 ppm. Although strong induction of lung neoplasms by tetranitromethane is evident no primary nasal neoplasms were seen in these studies.
Carcinomas of various types have been found following exposure of animals to several small nitrated aliphatic compounds at low concentrations (e.g. 2-nitropropane and 3-nitro-3-hexene).
Workers exposed to TNT (in which tetranitromethane is a contaminant) experience a higher than expected incidence of stomach cancer.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
tetranitromethane	509-14-8	>98

Section 4 - FIRST AID MEASURES

SWALLOWED
· IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. · Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:

EYE
■ If this product comes in contact with the eyes: · Immediately hold eyelids apart and flush the eye continuously with running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower

lids.

SKIN

■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and soap if available).

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN

■ The material may induce methemoglobinemia following exposure.
· Initial attention should be directed at oxygen delivery and assisted ventilation if necessary. Hyperbaric oxygen has not demonstrated substantial benefits.
· Hypotension should respond to Trendelenburg's position and intravenous fluids; otherwise dopamine may be needed.

Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHg):	8.378 @ 20 C
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	1.623
Lower Explosive Limit (%):	Not available

EXTINGUISHING MEDIA

· Dry powder fire extinguishers containing bicarbonate should not be used on nitroalkanes.
FOR SMALL FIRE:
· USE FLOODING QUANTITIES OF WATER.
· DO NOT use dry chemicals, CO2 or foam.

FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.
· May be violently or explosive reactive.
When any large container (including road and rail tankers) is involved in a fire,
consider evacuation by 800 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

■ WARNING: May EXPLODE on heating!!!.
· Will not burn but increases intensity of fire.
· May explode from friction, shock, heat or containment.
Combustion products include: carbon dioxide (CO2), nitrogen oxides (NOx), other pyrolysis products typical of burning organic material.

FIRE INCOMPATIBILITY

■ Avoid storage with reducing agents.
· Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous.

PERSONAL PROTECTION

Glasses:
Full face- shield.
Gloves:
Respirator:
Type AB Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
· Clean up all spills immediately.
· No smoking, naked lights, ignition sources.
MAJOR SPILLS
· Clear area of personnel and move upwind.
· Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

· DO NOT allow clothing wet with material to stay in contact with skin.
· Avoid personal contact and inhalation of dust, mist or vapors.
· Provide adequate ventilation.

RECOMMENDED STORAGE METHODS

■ Glass container.
All inner and sole packagings for substances in Packing Group I,must be hermetically sealed.

STORAGE REQUIREMENTS

■ In addition, Goods of Class 5.1, packing group I should be:
· stored in a room or space with free vents
· stored in piles so that (i) the length of the pile does not exceed 3 metres; (ii) the height of the pile does not exceed 3 metres if the area is

provided with automatic fire extinguishers or 1.2 metres if not.
· stored in a room that is equipped with an automatic fire sprinkler capable of a discharge rate of at least 10 litres per minute per square meter of floor area, where 1000 kgs or more of the material is to be stored.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

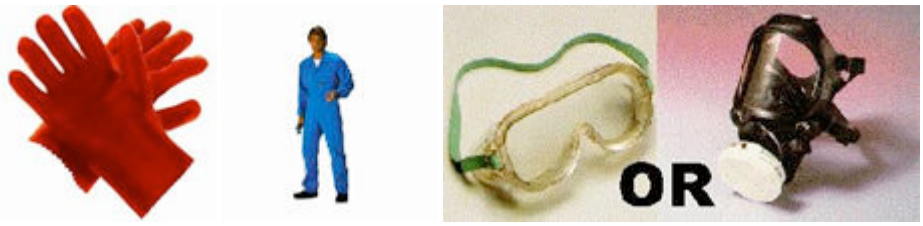
EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes
US NIOSH Recommended Exposure Limits (RELs)	tetranitromethane (Tetranitromethane)	1	8						
Canada - Alberta Occupational Exposure Limits	tetranitromethane (Tetranitromethane)	0.005	0.04						
Canada - British Columbia Occupational Exposure Limits	tetranitromethane (Tetranitromethane)	0.005							2B
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	tetranitromethane (Tetranitromethane)	0.005	0.04						
US OSHA Permissible Exposure Levels (PELs) - Table Z1	tetranitromethane (Tetranitromethane)	1	8						
US ACGIH Threshold Limit Values (TLV)	tetranitromethane (Tetranitromethane)	0.005							TLV Basis: eye & upper respiratory tract irritation; upper respiratory tract cancer
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	tetranitromethane (Tetranitromethane)	1	8						
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	tetranitromethane (Tetranitromethane)	1	8						
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	tetranitromethane (Tetranitromethane)	1	8						
US - Minnesota Permissible Exposure Limits (PELs)	tetranitromethane (Tetranitromethane)	1	8						
US - California Permissible Exposure Limits for Chemical Contaminants	tetranitromethane (Tetranitromethane)	0.005	0.04						

US - Idaho - Limits for Air Contaminants	tetranitromethane (Tetranitromethane)	1	8			
US - Hawaii Air Contaminant Limits	tetranitromethane (Tetranitromethane)	1	8			
US - Alaska Limits for Air Contaminants	tetranitromethane (Tetranitromethane)		8			
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	tetranitromethane (Tetranitromethane)	1	8	1	8	
US - Washington Permissible exposure limits of air contaminants	tetranitromethane (Tetranitromethane)	1		3		
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	tetranitromethane (Tetranitromethane)	0.005		0.015		T20
Canada - Nova Scotia Occupational Exposure Limits	tetranitromethane (Tetranitromethane)	0.005				TLV Basis: eye & upper respiratory tract irritation; upper respiratory tract cancer
Canada - Prince Edward Island Occupational Exposure Limits	tetranitromethane (Tetranitromethane)	0.005				TLV Basis: eye & upper respiratory tract irritation; upper respiratory tract cancer
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	tetranitromethane (Tetranitromethane)	1	8			
US - Michigan Exposure Limits for Air Contaminants	tetranitromethane (Tetranitromethane)	1	8			
US - Oregon Permissible Exposure Limits (Z-1)	tetranitromethane (Tetranitromethane)	1	8			
Canada - Northwest Territories Occupational Exposure Limits (English)	tetranitromethane (Tetranitromethane)	1	8	3	24	

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR
Type AB Filter of sufficient capacity
Consult your EHS staff for recommendations

EYE
· Chemical goggles.
· Full face shield.

HANDS/FEET
■ Wear chemical protective gloves, eg. PVC.
Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
· frequency and duration of contact,
· chemical resistance of glove material,
· glove thickness and
· dexterity
Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).
· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
· Contaminated gloves should be replaced.
Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
Leather wear not recommended: Contaminated leather footwear, watch bands, should be destroyed, i.e. burnt, as it cannot be adequately decontaminated.

OTHER
· Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area.
· Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted.
· Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely.
· Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood.
· Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.
· Overalls.
· PVC Apron.
· Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
· For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets), non sparking safety footwear.

ENGINEERING CONTROLS
· Employees exposed to confirmed human carcinogens should be authorized to do so by the employer, and work in a regulated area.
· Work should be undertaken in an isolated system such as a "glove-box" . Employees should wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system.
· Within regulated areas, the carcinogen should be stored in sealed containers, or enclosed in a closed system, including piping systems, with any sample ports or openings closed while the carcinogens are contained within.
· Open-vessel systems are prohibited.
· Each operation should be provided with continuous local exhaust ventilation so that air movement is always from ordinary work areas to the operation.
· Exhaust air should not be discharged to regulated areas, non-regulated areas or the external environment unless decontaminated. Clean make-up air should be introduced in sufficient volume to maintain correct operation of the local exhaust system.
· For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.
· Except for outdoor systems, regulated areas should be maintained under negative pressure (with respect to non-regulated areas).
· Local exhaust ventilation requires make-up air be supplied in equal volumes to replaced air.
· Laboratory hoods must be designed and maintained so as to draw air inward at an average linear face velocity of 150 feet/ min. with a minimum of 125 feet/ min. Design and construction of the fume hood requires that insertion of any portion of the employees body, other than hands and arms, be disallowed.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.
Does not mix with water.
Sinks in water.
Toxic or noxious vapours/gas.

State	Liquid	Molecular Weight	196.04
Melting Range (°F)	56.84	Viscosity	Not Available
Boiling Range (°F)	258.8	Solubility in water (g/L)	Immiscible
Flash Point (°F)	>230	pH (1% solution)	Not applicable
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapor Pressure (mmHg)	8.378 @ 20 C
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	1.623
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	>1
Volatile Component (%vol)	Not available	Evaporation Rate	Not available

APPEARANCE

Colourless to oily liquid with pungent, acrid odour; does not mix with water. Soluble in alcohol, ether.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

· Presence of incompatible materials.
· Product is considered stable under normal handling conditions.

STORAGE INCOMPATIBILITY

■ Tetranitromethane:
· is a powerful oxidant
· is a thermally, highly unstable, impact-sensitive high explosive
· may be explosive in the presence of impurities
· reacts violently with aniline
· may ignite and/ or react explosively with many substances including other strong oxidisers, amines, combustible materials, fuels, hydrocarbons, finely divided metals, and other explosive materials
· may wet combustible organic products to form highly explosive materials which may be susceptible to elevated temperatures and mild shock
· forms sensitive explosive mixtures with hydrocarbons, aromatics, acetylenics, nitriles, alkalis, metal powders such as aluminium, dinitromethane, nitrobenzenes, nitronaphthalenes,nitrotoluenes, toluene; mixtures with aliphatics (especially short-chain and branched chain), alkyl nitrates, ethers, alcohols are also shock sensitive but to a lesser degree
· is incompatible with chemically active metals, copper, iron and its salts, brass, zinc
· attacks some plastics, rubber and coatings
· may be shipped and stored under refrigeration.
· Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous.
Avoid reaction with oxidizing agents, bases and strong reducing agents.
· Inorganic reducing agents react with oxidizing agents to generate heat and products that may be flammable, combustible, or otherwise reactive. Their reactions with oxidizing agents may be violent.
· Alkyl nitrates as a class of compounds react violently with sulfuric acid, tin(IV) chloride, boron trifluoride, and other Lewis acids after an induction period of up to several hours to produce a vigorous evolution of gas.
· Traces of nitrogen oxides sensitise alkyl nitrates to decomposition with resulting explosion on heating or due to pressure build-up on prolonged storage at ambient temperatures.
· Transition metal oxides or their chelates greatly accelerate the decomposition rate.
· Mixtures of alkyl nitrates and azides are shock-sensitive and potentially highly explosive.
Avoid storage with reducing agents.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

TETRANITROMETHANE

TOXICITY AND IRRITATION

TETRANITROMETHANE:
■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Oral (rat) LD50: 130 mg/kg	Nil reported.

Inhalation (rat) LC50: 18 ppm/4h
Intravenous (rat) LD50: 12.6 mg/kg
Oral (mouse) LD50: 375 mg/kg
Inhalation (mouse) LC50: 54 ppm/4h
Intraperitoneal (mouse) LD50: 53 mg/kg
Intravenous (mouse) LD50: 63.1 mg/kg
Inhalation (cat) LC50: 100 ppm/20m

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.
Chemical with the aliphatic nitro group (-C-NO2) have been added to a list of DNA-reactive subgroups recognised by the National Toxicological Program (NTP, U.S. Dept Health and Human Services) for possible carcinogenic activity.

The substance is classified by IARC as Group 3:

NOT classifiable as to its carcinogenicity to humans.
Evidence of carcinogenicity may be inadequate or limited in animal testing.
Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen
[National Toxicology Program: U.S. Dep. of Health & Human Services 2002].
Olfaction and eye effects, somnolence, respiratory tumours, bronchogenic carcinoma, methaemoglobinaemia/ carboxyhaemoglobinaemia recorded.
Tumorigenic - Carcinogenic by RTECS criteria.

CARCINOGEN

TETRANITROMETHANE	US Environmental Defense Scorecard Recognized Carcinogens	Reference(s)	P65
TETRANITROMETHANE	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65

Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms.
This material and its container must be disposed of as hazardous waste.
Avoid release to the environment.
Refer to special instructions/ safety data sheets.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
tetranitromethane	HIGH		LOW	MED

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information
Ignitability characteristic: use EPA hazardous waste number D001 (waste code I)
B. Component Waste Numbers
When tetranitromethane is present as a solid waste as a discarded commercial chemical product, off-specification species, as a container residue, or a spill residue, use EPA waste number P112 (waste code R).

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.
¦ Puncture containers to prevent re-use and bury at an authorized landfill.
Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
A Hierarchy of Controls seems to be common - the user should investigate:
· Reduction
· Reuse
· Recycling
· Disposal (if all else fails)
This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be

applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.
For small quantities of oxidizing agent:
· Cautiously acidify a 3% solution to pH 2 with sulfuric acid.
· Gradually add a 50% excess of sodium bisulfite solution with stirring.
· Recycle wherever possible or consult manufacturer for recycling options.
· Consult Waste Management Authority for disposal.

Section 14 - TRANSPORTATION INFORMATION

DOT:
Symbols: + Hazard class or Division: 5.1
Identification Numbers: UN1510 PG: I
Label Codes: 5.1, 6.1 Special provisions: 2, B32,
T20, TP2,
TP13,
TP38, TP44
Packaging: Exceptions: None Packaging: Non- bulk: 227
Packaging: Exceptions: None Quantity limitations: Forbidden
Passenger aircraft/rail:
Quantity Limitations: Cargo Forbidden Vessel stowage: Location: D
aircraft only:
Vessel stowage: Other: 40, 66
Hazardous materials descriptions and proper shipping names:
Tetranitromethane

Air Transport IATA:

ICAO/IATA Class: 5.1 ICAO/IATA Subrisk: 6.1
UN/ID Number: 1510 Packing Group: -
Special provisions: None
Cargo Only
Packing Instructions: Forbidden Maximum Qty/Pack: Forbidden
Passenger and Cargo Passenger and Cargo
Packing Instructions: Forbidden Maximum Qty/Pack: Forbidden
Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity
Packing Instructions: - Maximum Qty/Pack: -
Shipping Name: TETRANITROMETHANE

Maritime Transport IMDG:

IMDG Class: 5.1 IMDG Subrisk: 6.1
UN Number: 1510 Packing Group: I
EMS Number: F-H , S-Q Special provisions: None
Limited Quantities: 0 Marine Pollutant: Yes
Shipping Name: TETRANITROMETHANE

Section 15 - REGULATORY INFORMATION

tetranitromethane (CAS: 509-14-8) is found on the following regulatory lists;

"Canada - Alberta Occupational Exposure Limits","Canada - British Columbia Occupational Exposure Limits","Canada - Northwest Territories Occupational Exposure Limits (English)","Canada - Nova Scotia Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens","Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada - Saskatchewan Occupational Health and Safety Regulations - Designated Chemical Substances","Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances","Canada Ingredient Disclosure List (SOR/88-64)","Canada Non-Domestic Substances List (NDSL)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs","US - Alaska Limits for Air Contaminants","US - California Air Toxics ""Hot Spots"" List (Assembly Bill 2588) Substances for which production, use or other presence must be reported","US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List","US - California Permissible Exposure Limits for Chemical Contaminants","US - California Proposition 65 - Carcinogens","US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens","US - Connecticut Hazardous Air Pollutants","US - Hawaii Air Contaminant Limits","US - Idaho - Limits for Air Contaminants","US - Maine Chemicals of High Concern List","US - Massachusetts Oil & Hazardous Material List","US - Michigan Exposure Limits for Air Contaminants","US - Minnesota Hazardous Substance List","US - Minnesota Permissible Exposure Limits (PELs)","US - New Jersey Right to Know Hazardous Substances","US - Oregon Permissible Exposure Limits (Z-1)","US - Pennsylvania - Hazardous Substance List","US - Rhode Island Hazardous Substance List","US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants","US - Vermont Hazardous Constituents","US - Vermont Hazardous Waste - Acutely Hazardous Wastes","US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants","US - Vermont Permissible Exposure Limits Table Z-1-A

Transitional Limits for Air Contaminants","US - Washington Dangerous waste constituents list","US - Washington Discarded Chemical Products List - ""P"" Chemical Products","US - Washington Permissible exposure limits of air contaminants","US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants","US ACGIH Threshold Limit Values (TLV)","US ACGIH Threshold Limit Values (TLV) - Carcinogens","US Department of Homeland Security Chemical Facility Anti-Terrorism Standards - Chemicals of Interest","US Department of Transportation (DOT) List of Hazardous Substances and Reportable Quantities - Hazardous Substances Other Than Radionuclides","US DOE Temporary Emergency Exposure Limits (TEELs)","US EPA Acute Exposure Guideline Levels (AEGLs) - Final","US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112(r) of the Clean Air Act","US National Toxicology Program (NTP) 11th Report Part B. Reasonably Anticipated to be a Human Carcinogen","US NFPA 1 Annex B Typical Oxydizers","US NIOSH Recommended Exposure Limits (RELs)","US OSHA Permissible Exposure Levels (PELs) - Table Z1","US RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261","US RCRA (Resource Conservation & Recovery Act) - List of Hazardous Wastes","US SARA Section 302 Extremely Hazardous Substances","US Toxic Substances Control Act (TSCA) - Inventory","USA: Chemical Facility Anti-Terrorism Standards - List Appendix A - 6CFR 27"

Section 16 - OTHER INFORMATION

Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Issue Date: Oct-22-2009

Print Date:Jan-25-2011