

Diuron

sc-239818



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

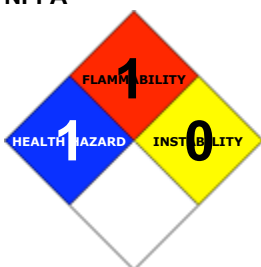
PRODUCT NAME

Diuron

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

C9-H10-Cl2-N2-O, (C6H3Cl2)NHCON(CH3)2, "AF 101", Herbatox, Di-On, Cekiuron, Herbicide, "USAF P-7", Crisuron, HW920, "USAF XR-42", Dailon, Karmex, Vonduron, DCMU, "Karmex Diuron Herbicide", Diater, "Karmex DW", Dichlorfenidim, Marmer, "Direx 4L", Telvar, Diurex, "Telvar Diuron Herbicide", Diurol, "3-(3, 4-dichlorophenyl)-1, 1-dimethylurea", "Diuron 4L", "urea, 3-(3, 4-dichlorophenyl)-1, 1-dimethyl-", DMU, "3-(3, 4-dichlorophenyl)-1, 1-dimethylurea", Drexel, "1, 1-dimethyl-3-(3, 4-dichlorophenyl) urea", Duran, "N (3, 4-dichlorophenyl)-N, N-dimethylurea", Dynex, "N-(3, 4-dichlorophenyl)-N, N-dimethylurea", "Farmco Diuron", "phenylurea pesticides"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	1	
Toxicity:	2	
Body Contact:	0	
Reactivity:	1	
Chronic:	2	

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



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Harmful if swallowed.

Limited evidence of a carcinogenic effect.

Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Harmful: danger of serious damage to health by prolonged exposure if swallowed.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

■ 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

■ Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn).

Slight abrasive damage may also result.

SKIN

■ Skin contact is not thought to produce harmful health effects (as classified using animal models).

Systemic harm, however, has been identified following exposure of animals by at least one other route and the material may still produce health damage following entry through wounds, lesions or abrasions.

■ 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

■ The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified using animal models).

Nevertheless, adverse effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

■ Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

CHRONIC HEALTH EFFECTS

■ Harmful: danger of serious damage to health by prolonged exposure if swallowed.

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This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects.

Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.

Chronic effects of exposure to diuron may initially include skin irritation, or blurring of vision, liver enlargement; spleen and thyroid effects; red blood cell destruction; or reduction of the blood's oxygen carrying capacity with cyanosis (bluish discolourisation), weakness or shortness of breath by formation of methemoglobin. Significant skin permeation after contact appears unlikely. There are no reports of human sensitisation to diuron.

At 2500 ppm diuron in the diet for 2 years, rats and dogs showed growth retardation, slight anaemia, presence of abnormal pigmentation, increased erythropoiesis and splenic haemosiderosis.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
diuron	330-54-1	> 99

NOTE: Impurities, in manufacture, may occur as

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: · Wash out immediately with fresh 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 or hair contact occurs: · Flush skin and hair with running water (and soap if available). · Seek medical attention in event of irritation.

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Other measures are usually unnecessary.

NOTES TO PHYSICIAN

■ for diuron:

· Symptomatic and supportive action is indicated.

· Methaemoglobinaemia is possible

· if compound is hydrolysed in vivo to aniline.

· Methaemoglobinaemia causes cyanosis. Reversion of methaemoglobin to haemoglobin is spontaneous after removal from exposure, so moderate degrees of cyanosis need be treated only by supportive measures such as bed rest and oxygen inhalation.

· Thorough cleansing of the entire contaminated area of the body, including the scalp and nails is of the utmost importance.

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):	Negligible.
Upper Explosive Limit (%):	Not available.
Specific Gravity (water=1):	Not available.
Lower Explosive Limit (%):	Not available.

EXTINGUISHING MEDIA

· Foam.

· Dry chemical powder.

FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.

· Wear breathing apparatus plus protective gloves.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 100 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Combustible solid which burns but propagates flame with difficulty.

· Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.

Combustion products include: carbon monoxide (CO), carbon dioxide (CO₂), hydrogen chloride, phosgene, nitrogen oxides (NO_x), other pyrolysis products typical of burning organic material.

FIRE INCOMPATIBILITY

‡ Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

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Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up waste regularly and abnormal spills immediately.
- Avoid breathing dust and contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Vacuum up or sweep up. NOTE: Vacuum cleaner must be fitted with an exhaust micro filter (HEPA type) (consider explosion-proof machines designed to be grounded during storage and use).
- Dampen with water to prevent dusting before sweeping.
- Place in suitable containers for disposal.

Environmental hazard - contain spillage.

MAJOR SPILLS

- ⚡ Environmental hazard - contain spillage.

Moderate hazard.

- CAUTION: Advise personnel in area.
- Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
 - Wear protective clothing when risk of exposure occurs.
- Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.
- Do NOT cut, drill, grind or weld such containers.
 - In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

RECOMMENDED STORAGE METHODS

- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

STORAGE REQUIREMENTS

- ⚡ Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
Canada - Alberta Occupational Exposure Limits	diuron (Diuron)		10						
Canada - British Columbia Occupational Exposure Limits	diuron (Diuron)		10						
US ACGIH Threshold Limit Values (TLV)	diuron (Diuron)		10						TLV Basis: upper respiratory tract irritation

US NIOSH Recommended Exposure Limits (RELs)	diuron (Diuron)	10		
US - Minnesota Permissible Exposure Limits (PELs)	diuron (Diuron)	10		
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	diuron (Diuron)	10		
US - California Permissible Exposure Limits for Chemical Contaminants	diuron (Diuron)	10		
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	diuron (Diuron)	10		
US - Hawaii Air Contaminant Limits	diuron (Diuron)	10		
US - Alaska Limits for Air Contaminants	diuron (Diuron)	10		
US - Washington Permissible exposure limits of air contaminants	diuron (Diuron)	10	20	
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	diuron (Diuron)	10	20	
US - Michigan Exposure Limits for Air Contaminants	diuron (Diuron)	10		
Canada - Prince Edward Island Occupational Exposure Limits	diuron (Diuron)	10		TLV Basis: upper respiratory tract irritation
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	diuron (Diuron)	10		
Canada - Northwest Territories Occupational	diuron (Diuron)	10	20	

Exposure Limits
(English)

Canada - Nova Scotia Occupational Exposure Limits	diuron (Diuron)		10	TLV Basis: upper respiratory tract irritation
US OSHA Permissible Exposure Levels (PELs) - Table Z1	3,4,3',4'-tetrachloroazobenzene (Chlorobenzene)	75	350	

ENDOELTABLE

The following materials had no OELs on our records

- 3,3',4,4'-tetrachloroazoxybenzene: CAS:21232-47-3

PERSONAL PROTECTION



RESPIRATOR

- Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

EYE

- Safety glasses with side shields
- Chemical goggles.

HANDS/FEET

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

- 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, AS/NZS 2161.1 or national equivalent).

- 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, AS/NZS 2161.10.1 or national equivalent) 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, AS/NZS 2161.10.1 or national equivalent) 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.

Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.

- polychloroprene
- nitrile rubber
- butyl rubber
- fluoroacoutchouc
- polyvinyl chloride

Gloves should be examined for wear and/ or degradation constantly.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

ENGINEERING CONTROLS

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.

- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.

Does not mix with water.

State	Divided solid	Molecular Weight	233.10
Melting Range (°F)	313- 318	Viscosity	Not Applicable
Boiling Range (°F)	356- 374 decomp	Solubility in water (g/L)	Immiscible
Flash Point (°F)	Not Available	pH (1% solution)	Not applicable.
Decomposition Temp (°F)	356	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available.	Vapor Pressure (mmHG)	Negligible.
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	Not available.
Lower Explosive Limit (%)	Not available.	Relative Vapor Density (air=1)	8.04
Volatile Component (%vol)	Not applicable.	Evaporation Rate	Not applicable

APPEARANCE

Crystalline solid, low solubility in hydrocarbon solvents, stable towards oxidation and moisture. Degraded by sunlight. Solubility in water @ 25 C: 42 ppm.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY

‡ Segregate from alcohol, water.

Avoid reaction with oxidizing agents.

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

Section 11 - TOXICOLOGICAL INFORMATION

diuron

TOXICITY AND IRRITATION

3,4,3',4'-TETRACHLOROAZOBENZENE:

3,3',4,4'-TETRACHLOROAZOXYBENZENE:

DIURON:

■ No significant acute toxicological data identified in literature search.

DIURON:

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

TOXICITY	IRRITATION
Oral (rat) LD50: 1017 mg/kg	Nil Reported
Dermal (rat) LD50: >5000 mg/kg	

■ Diuron is absorbed readily through the gut and lungs while uptake through the skin is more limited. It is slightly toxic to mammals but juveniles are more susceptible than adults(18). The oral LD50 in rats is 3-4 g/kg and the dermal LD50 is > 2 g/kg(19). An early study indicated that animals fed protein-deficient diets were considerably more vulnerable to diuron toxicity; rats fed a diet of 3% protein were five times more sensitive to diuron.

Exposure to sub-lethal doses of diuron causes formation of methaemoglobin, an abnormal form of the protein haemoglobin which carries oxygen in the blood. Diuron can decrease the number of red blood cells (RBCs), increase the number of abnormally shaped RBCs, and increase the number of white blood cells. Diuron may cause the spleen to become congested due to the increased demand to remove damaged RBCs. Increases in liver size are also observed and are indicative of the extra load placed on this organ, the body's major site of detoxification. Diuron can also cause eye and skin irritation.

Diuron contains two significant impurities from the manufacturing process 3,3',4,4'-tetrachloroazobenzene (TCAB) and 3,3',4,4'-tetrachloroazoxybenzene (TCAOB), both potent 'dioxin-like' substances. TCAB levels between 0.15 and 28 ppm have been found in diuron samples tested. TCAOB is present at lower levels. Both TCAB and TCAOB cause chloracne a serious skin disease

Carcinogenicity: The US Environmental Protection Agency (EPA) has classified diuron as a 'known/likely' carcinogen since 1997 based on the results of two studies. One study on rats indicated that both males and females fed diuron had a higher incidence of bladder cancer than control animals. The male rats in this study also had a higher incidence of kidney cancer than the control animals. In a study of mice animals with higher exposures had more breast cancer

Mutagenicity: There is conflicting evidence on whether diuron can cause mutations

Developmental Toxicity: Rats fed relatively high levels (125 mg/kg/day) of diuron produced offspring with delayed bone formation(26) and other studies indicate that similar levels of diuron reduce birth weight. The US Toxics Release Inventory list diuron as a developmental toxin In mammals, metabolism principally occurs through hydroxylation and dealkylation.

Metabolites. Breakdown of this compound is similar in animals, plants and soil. The first step is N-demethylation followed by ring cleavage. The main breakdown product of diuron is 3,4-dichloroaniline(3,4-DCA). The oral LD50 of 3,4-DCA in rats is around 60 mg/kg and by the inhalation route the LC50 ranges from 2.8 to 4.7 mg//4hrs indicating that 3,4-DCA is considerably more toxic than diuron itself. Dermal and inhalation absorption is rapid leading to formation of methaemoglobin. A marked species difference is dermal toxicity is noted with rabbit considerably more sensitive than rats. No human data is available but by extrapolating from other aromatic amines humans could be considerably more sensitive to methaemoglobin formation than rats. 3,4-DCA should be regarded as a potential respiratory sensitiser. The carcinogenic potential of 3,4-DCA remains uncertain.

Note: Equivocal animal tumorigenic agent by RTECS criteria.

NOTE: This substance may contain impurities (tetrachlorazobenzene and tetrachloroazoxybenzene).

Maximum impurity levels are proscribed under various jurisdictions

ADI: 0.006 mg/kg/day

NOEL: 0.625 mg/kg/day

3,4,3',4'-TETRACHLOROAZOBENZENE:

Bacterial cell mutagen

NOTE: This substance is known to produce the sometimes disfiguring cutaneous eruption , chloracne.(1)

The substance also exhibits an hepatotoxic effect in rats and mice. Liver hypertrophy is observed in all animals following intraperitoneal injection.(2) The injection also results in delayed starvation-like syndromes in rats which results in diminished food intake, weight loss and death.(3)

(1) Crow - New Scientist 78,1098, pp 78-80 1978

(2) Schrankel etal - Research Communications Vol 28 pp 527-540 1980

(3) Hsia & Kreamer - Toxicological Letters Vol 25 pp 247-258 1985

3,3',4,4'-TETRACHLOROAZOXYBENZENE:

Mouse cell mutagen

Reproductive effector in mice and rats.

NOTE: This substance is known to produce the sometimes disfiguring cutaneous eruption , chloracne.(1)

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CARCINOGEN

Diuron	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	A4
diuron	US - Rhode Island Hazardous Substance List	IARC	
DIURON	US Environmental Defense Scorecard Recognized Carcinogens	Reference(s)	P65
DIURON	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65
TWAPPM~	US - Maine Chemicals of High Concern List	Carcinogen	A4
VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	CA Prop 65

Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

This material and its container must be disposed of as hazardous waste.

Avoid release to the environment.

Refer to special instructions/ safety data sheets.

Section 13 - DISPOSAL CONSIDERATIONS

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. 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.

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION



DOT:

Symbols: G Hazard class or Division: 9

Identification Numbers: UN3077 PG: III

Label Codes: 9 Special provisions: 8, 146,

335, B54,

IB8, IP3,

N20, T1,

TP33

Packaging: Exceptions: 155 Packaging: Non- bulk: 213

Packaging: Exceptions: 155 Quantity limitations: No limit

Passenger aircraft/rail:

Quantity Limitations: Cargo No limit Vessel stowage: Location: A

aircraft only:

Vessel stowage: Other: None

Hazardous materials descriptions and proper shipping names:

Environmentally hazardous substance, solid, n.o.s

Air Transport IATA:

UN/ID Number: 3077 Packing Group: III

Special provisions: A97

Cargo Only

Packing Instructions: 956 Maximum Qty/Pack: 400 kg

Passenger and Cargo Passenger and Cargo

Packing Instructions: Y956 Maximum Qty/Pack: 400 kg

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: 956 Maximum Qty/Pack: 30 kg G

Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,
N.O.S. *(CONTAINS DIURON)

Maritime Transport IMDG:

IMDG Class: 9 IMDG Subrisk: None

UN Number: 3077 Packing Group: III

EMS Number: F-A,S-F Special provisions: 274 335

Limited Quantities: 5 kg Marine Pollutant: Yes

Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(contains diuron)

Section 15 - REGULATORY INFORMATION

diuron (CAS: 330-54-1) 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 Industrial Hazardous Substances","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada Domestic Substances List (DSL)","Canada Environmental Quality Guidelines (EQGs) Water: Community","Canada Toxicological Index Service - Workplace

Hazardous Materials Information System - WHMIS (English),"US - Alaska Limits for Air Contaminants","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 - Priority List for the Development of NSRLs for Carcinogens","US - Connecticut Hazardous Air Pollutants","US - Hawaii Air Contaminant Limits","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 - Pennsylvania - Hazardous Substance List","US - Rhode Island Hazardous Substance List","US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants","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 Permissible exposure limits of air contaminants","US ACGIH Threshold Limit Values (TLV)","US ACGIH Threshold Limit Values (TLV) - Carcinogens","US CWA (Clean Water Act) - List of Hazardous Substances","US CWA (Clean Water Act) - Reportable Quantities of Designated Hazardous Substances","US Department of Transportation (DOT) List of Hazardous Substances and Reportable Quantities - Hazardous Substances Other Than Radionuclides","US EPA High Production Volume Program Chemical List","US EPCRA Section 313 Chemical List","US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112(r) of the Clean Air Act","US NIOSH Recommended Exposure Limits (RELs)","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory","US TSCA Section 4 (e) - ITC Priority Testing List","US TSCA Section 8 (a) - Preliminary Assessment Information Rules (PAIR) - Reporting List","US TSCA Section 8 (d) - Health and Safety Data Reporting"

Regulations for ingredients

3,4,3',4'-tetrachloroazobenzene (CAS: 14047-09-7) is found on the following regulatory lists;

"Canada Ingredient Disclosure List (SOR/88-64)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)"

No data for 3,3',4,4'-tetrachloroazoxybenzene (CAS: , 21232-47-3)

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.

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