Daminozide

sc-326749

Material Safety Data Sheet

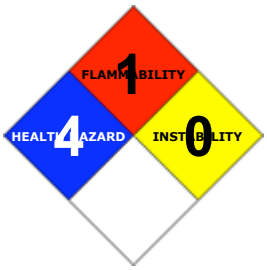
Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Daminozide

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
C6-H12-N2-O3, HO2CCH2CH2CONHN(CH3)2, "succinic acid, mono(2, 2-dimethylhydrazide)", "succinic 2, 2-dimethylhydrazide", "Alar, ", Alar-85, aminozide, B-9, "B 995", "B Nine", "bernsteinsaeure-2, 2-dimethylhydrazid", "butanedioic acid mono(2, 2-dimethylhydrazide)", Dimas, "N-dimethyl amino-beta-carbamyl propionic acid", "dimethylaminosuccinamic acid", "N-(dimethylamino)succinamic acid", DMASA, DMSA, SADH, "succinic acid 2, 2-dimethylhydrazide", "succinic 1, 1-dimethyl hydrazide", "pesticide/ growth regulator/ retardant"

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

Limited evidence of a carcinogenic effect.
Harmful to aquatic organisms.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Accidental ingestion of the material may be damaging to the health of the individual.
■ No ill-effects were noted in dogs fed up to 70000 mg/kg diet daminozide total dose.
Reports in Russian literature describe alterations in liver function of experimental animals given very large doses.
■ Hydrazine (and some of its derivatives), is a strong convulsant in laboratory animals and can cause central nervous system (CNS) depression or stimulation.
Symptoms of CNS depression may include nonspecific discomfort, giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness.

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

■ The material is not thought to produce adverse health effects or skin irritation following contact (as classified using animal models).
Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
■ 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 respiratory irritation (as classified using animal models).
Nevertheless inhalation of dusts, or fume, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.
■ Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.
■ 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.
■ Symptoms of inhalation of hydrazine (and some of its derivatives), may include nausea and headache.
Central nervous system (CNS) excitability may lead to convulsions and, in severe cases, respiratory arrest and death.

CHRONIC HEALTH EFFECTS

■ There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.
Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
There is some evidence that inhaling this product is more likely to cause a sensitization reaction in some persons compared to the general population.
Non-carcinogenic in 2-yr feeding trial in rats at 5000 mg/kg diet daminozide and in mice at 3000 mg/kg diet.
In a three generation study in rats a no observable effect level on reproduction (NOEL) was 1000 mg/kg. In rabbits the NOEL on teratogenicity and embryotoxicity was 3000 mg/kg.
When administered orally, hydrazine induced pulmonary adenomas and adenocarcinomas in mice. Inhalation induced lung carcinomas and lymphosarcomas of the spleen in female mice. A study of 423 men, involved in the manufacture of hydrazine revealed three stomach, one prostate and a neurogenic cancer.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
daminozide	1596-84-5	>98
contaminant as		
1,1-dimethylhydrazine	57-14-7	

Section 4 - FIRST AID MEASURES

SWALLOWED

· If swallowed do NOT induce vomiting. · If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

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. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN
■ Treat symptomatically.
In poisonings involving hydrazine:
Correction of early hypoglycaemia, with large parenteral doses of pyridoxine appears to suppress convulsions and other neurological effects. In man, hydrazine-induced hyperexcitability and coma may respond to massive doses of pyridoxine but there is no evidence that liver necrosis or damage can be prevented or corrected by this antidote.
GOSSELIN, SMITH & HODGE: Clinical Toxicology of Commercial Products, 5 th Ed.

Section 5 - FIRE FIGHTING MEASURES

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

EXTINGUISHING MEDIA
· Water spray or fog.
· Foam.

FIRE FIGHTING
· Alert Emergency Responders and tell them location and nature of hazard.
· Wear breathing apparatus plus protective gloves.

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 (CO_2), nitrogen oxides (NO_x), other pyrolysis products typical of burning organic material.
May emit poisonous fumes.

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

PERSONAL PROTECTION
Glasses:
Chemical goggles.
Gloves:
Respirator:
Type AK-P Filter of sufficient capacity

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.
MAJOR SPILLS
■ 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
· Store in original containers.
· Keep containers securely sealed.

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
Canada - Ontario Occupational Exposure Limits	daminozide (Particles (Insoluble or Poorly Soluble) Not Otherwise)		10 (I)						
Canada - British Columbia Occupational Exposure Limits	daminozide (Particles (Insoluble or Poorly Soluble) Not Otherwise Classified (PNOC))		10 (N)						
Canada - Ontario Occupational Exposure Limits	daminozide (Specified (PNOS) / Particules (insolubles ou peu solubles) non précisées par ailleurs)		3 (R)						
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	daminozide (Particulates not otherwise regulated Respirable fraction)		5						
US - California Permissible Exposure Limits for Chemical Contaminants	daminozide (Particulates not otherwise regulated Respirable fraction)		5						(n)
US - Oregon Permissible Exposure Limits (Z-1)	daminozide (Particulates not otherwise regulated (PNOR) (f) Total Dust)	-	10						Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits. PNOR means “particles not otherwise regulated.”
US - Michigan Exposure Limits for Air Contaminants	daminozide (Particulates not otherwise regulated, Respirable dust)		5						
US - Oregon Permissible Exposure Limits (Z-1)	daminozide (Particulates not otherwise regulated (PNOR) (f) Respirable Fraction)	-	5						Bold print identifies substances for which the Oregon

						Permissible Exposure Limits (PELs) are different than the federal Limits. PNOR means “particles not otherwise regulated.”
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	daminozide (Particulates not otherwise regulated (PNOR)(f)-Respirable fraction)		5			
Canada - Prince Edward Island Occupational Exposure Limits	daminozide (Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles)		10			See Appendix B current TLV/BEI Book
US NIOSH Recommended Exposure Limits (RELs)	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)			0.06	0.15	See Appendix A; Ca; (Ceiling ([2-hour]))
Canada - Alberta Occupational Exposure Limits	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.01	0.02			
Canada - British Columbia Occupational Exposure Limits	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.01				Skin; 2B
US OSHA Permissible Exposure Levels (PELs) - Table Z1	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.5	1			
US ACGIH Threshold Limit Values (TLV)	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.01				TLV Basis: upper respiratory tract irritation; nasal cancer
US - Minnesota Permissible Exposure Limits (PELs)	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.5	1			
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.5	1			
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.5	1			

US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.5	1				
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)	1,1-dimethylhydrazine (1,1-DIMETHYLHYDRAZINE)	0.0002					
US - California Permissible Exposure Limits for Chemical Contaminants	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.01	0.025				
US - Idaho - Limits for Air Contaminants	1,1-dimethylhydrazine (1, 1-Dimethylhydrazine)	0.5	1				
US - Hawaii Air Contaminant Limits	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.5	1	1	2		
US - Alaska Limits for Air Contaminants	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.5	1				
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	1,1-dimethylhydrazine (1,1-Dimethylhydrazine - Skin)	0.5	1	1	2		
US - Washington Permissible exposure limits of air contaminants	1,1-dimethylhydrazine (1, 1-Dimethylhydrazine)	0.5		1.5			
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.01		0.03			Skin, T20
US - Michigan Exposure Limits for Air Contaminants	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.5	1				
Canada - Prince Edward Island Occupational Exposure Limits	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.01					TLV Basis: upper respiratory tract irritation; nasal cancer
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.5	1				

Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.5	1.2			
US - Oregon Permissible Exposure Limits (Z-1)	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.5	1			
Canada - Northwest Territories Occupational Exposure Limits (English)	1,1-dimethylhydrazine (1,1-Dimethylhydrazine - Skin)	0.5	1.3	1	2.6	
Canada - Nova Scotia Occupational Exposure Limits	1,1-dimethylhydrazine (1,1-Dimethylhydrazine)	0.01				TLV Basis: upper respiratory tract irritation; nasal cancer

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

• type ak-p filter of sufficient capacity.
Consult your EHS staff for recommendations

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: 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.
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
· fluorocaoutchouc
· 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.
Mixes with water.

State	Divided solid	Molecular Weight	160.20
Melting Range (°F)	324- 327	Viscosity	Not Applicable
Boiling Range (°F)	Not available	Solubility in water (g/L)	Miscible
Flash Point (°F)	Not available	pH (1% solution)	Not applicable
Decomposition Temp (°F)	Not available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapour Pressure (mmHG)	Negligible
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	Not available
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	Not applicable
Volatile Component (%vol)	Negligible	Evaporation Rate	Not applicable

APPEARANCE
White crystalline powder; mixes with water (100 g/l), acetone, methanol.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY
· Presence of incompatible materials.
· Product is considered stable.

STORAGE INCOMPATIBILITY
■ Avoid reaction with oxidizing agents.
· Avoid strong acids, bases.

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

Section 11 - TOXICOLOGICAL INFORMATION

daminozide

TOXICITY AND IRRITATION
■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.
DAMINOZIDE:

TOXICITY	IRRITATION
Oral (rat) LD50: 8400 mg/kg	Nil Reported
Inhalation (rat) LC50: >147000 mg/m³	
Oral (mouse) LD50: 6300 mg/kg	
Intraperitoneal (mouse) LD50: 1325 mg/kg	
Dermal (rabbit) LD50: >5000 mg/kg	

■ for daminozide:
The oral LD50 for daminozide in rats is 8,400 mg/kg, and in mice is 6,300 mg/kg. Its dermal LD50 on rabbits is > 1600 mg/kg. The inhalation LC50 in rabbits is > 147 mg.
96-hours after administration of a single oral dose of 5 mg/kg to miniature swine, daminozide was detected in all body tissues at levels up to 73 ppb. The highest levels were found in the liver and kidney. Urinalysis showed that about 84% of the dose was eliminated in the urine and that 1% of the dose was metabolised to UDMH. The majority of daminozide residues ingested by milk animals is rapidly excreted in the urine and faeces
Carcinogenic effects: Unsymmetrical dimethyl hydrazine (UDMH) is a contaminant of commercial daminozide and a metabolite of daminozide which is formed in the body, during food processing, or when spray mixes containing daminozide are left standing in the mixing tank. Both daminozide and UDMH have caused increases in the incidence of benign and malignant tumors in test animals. Malignant tumors were found in female rats given dietary doses of 5000 and 10,000 ppm. Malignant and benign blood vessel tumors also occurred in treated mice.
The U.S. EPA has classified daminozide and its metabolite UDMH as probable human carcinogens based on the occurrence of tumors in laboratory animals.
No increase in tumor formation occurred in rats fed 5, 25, 250 or 500 mg/kg/day of daminozide for two years, nor in mice fed 15, 150, 300 or 500 mg/kg/day for 2 years.
When rats were given UDMH in their drinking water at concentrations of 0, 1, 50 or 100 ppm for 2 years, there was a significant, but slight,

dose- related increase in liver tumors in females, and bile duct hyperplasia and inflammation of the liver in males receiving 100 ppm and in females receiving 50 and 100 ppm.
Mice given UDMH in their drinking water for 2 years at 0, 1, 5 or 10 ppm for males and 0, 1, 5 or 20 ppm for females exhibited decreased survival at the highest dose tested. This study also showed a significant increase in the incidence of lung tumors.
In another study, mice given UDMH in their drinking water for two years at 0, 40 or 80 ppm exhibited a significant increase in the incidence of lung and vascular tumors.
Mutagenic Effects: Several studies have shown that daminozide is not mutagenic in either in vivo or in vitro tests. There is inconclusive evidence that UDMH may be mutagenic. Dimethylnitrosamine (DMN), another metabolite of daminozide, is mutagenic.
The NOEL for a 2-year study with rats fed 5, 25, 250 or 500 mg/kg/day was 5 mg/kg. Effects observed at higher doses included atrophy of ovaries and enlargement of the liver bile duct (hyperplasia. No effects were seen in dogs fed 7.5, 75 or 187.5 mg/kg/day daminozide for one year.
Reproductive Effects: A 3-generation study with rats fed 300 mg/kg showed no significant effects on fertility or reproductive capacity. The reproductive NOEL for a 2-generation study with rats fed 5, 50 or 500 mg/kg/day was 5 mg/kg/day.
Teratogenic Effects: No birth defects occurred in the offspring of pregnant rats fed 500 mg/kg/day, the highest dose tested. When pregnant rats were given 85, 390 or 1,800 mg/kg/day, ossification of the bones of the sternum and spine occurred in offspring at 1,800 mg/kg/day. The reproductive NOEL for this study was 390 mg/kg/day. No teratogenic or developmental effects occurred in the offspring of pregnant rabbits given 50, 150 or 300 mg/kg/day.
NOTE: The substance is classified under EC Directive on Dangerous Substances (67/548/EEC): Possible risk of irreversible effects, (substances suspected of being carcinogenic and/or mutagenic).
Carcinogenic by RTECS criteria
ADI: 0.7 mg/kg/day
NOEL: 75 mg/kg/day

TOXICITY	IRRITATION
1,1-DIMETHYLHYDRAZINE:	
Oral (rat) LD50: 122 mg/kg	Nil Reported
Inhalation (rat) LC50: 252 ppm/4h	
Dermal (rabbit) LD50: 1060 mg/kg	
■ 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.	
WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.	
Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen	
[National Toxicology Program: U.S. Dep. of Health & Human Services 2002].	

CARCINOGEN

DAMINOZIDE	US Environmental Defense Scorecard Recognized Carcinogens	Reference(s)	P65
DAMINOZIDE	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65
VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	CA Prop 65
1,1-dimethylhydrazine	US - Rhode Island Hazardous Substance List	IARC	
1,1-DIMETHYL HYDRAZINE	US Environmental Defense Scorecard Recognized Carcinogens	Reference(s)	P65
1,1-DIMETHYL HYDRAZINE	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65
VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	CA Prop 65; NTP 11th ROC

SKIN

1,1-dimethylhydrazine	US - Vermont Permissible Exposure	Skin Designation	X

	Limits Table Z-1-A Transitional Limits for Air Contaminants - Skin		
1,1-dimethylhydrazine	US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants - Skin	Skin Designation	X
1,1-dimethylhydrazine	US - Washington Permissible exposure limits of air contaminants - Skin	Skin	X
1,1-dimethylhydrazine	US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants - Skin	Skin Designation	X
1,1-dimethylhydrazine	US - Minnesota Permissible Exposure Limits (PELs) - Skin	Skin Designation	X
1,1-dimethylhydrazine	US - Hawaii Air Contaminant Limits - Skin Designation	Skin Designation	X
1,1-dimethylhydrazine	US OSHA Permissible Exposure Levels (PELs) - Skin	Skin Designation	X
1,1-dimethylhydrazine	Canada - Alberta Occupational Exposure Limits - Skin	Substance Interaction	1

Section 12 - ECOLOGICAL INFORMATION

Harmful to aquatic organisms.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
daminozide	HIGH	No Data Available	LOW	HIGH
1,1-dimethylhydrazine	LOW	LOW	LOW	HIGH

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

B. Component Waste Numbers
When 1,1-dimethylhydrazine 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 U098 (waste code T).

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

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

Section 15 - REGULATORY INFORMATION

daminozide (CAS: 1596-84-5) is found on the following regulatory lists;
"US - California Air Toxics ""Hot Spots"" List (Assembly Bill 2588) Substances for which production, use or other presence must be reported","US - California Proposition 65 - Carcinogens","US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens","US - Maine Chemicals of High Concern List"

Regulations for ingredients

1,1-dimethylhydrazine (CAS: 57-14-7) 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","International Chemical Secretariat (ChemSec) REACH SIN* List (*Substitute It Now!) 1.0","US - Alaska Limits for Air Contaminants","US - California Air Toxics ""Hot Spots"" List (Assembly Bill 2588) Substances for which emissions must be quantified","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 - California Toxic Air Contaminant List Category IV","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 Hazardous Materials","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 wastes which are Discarded Commercial Chemical Products or Off-Specification Batches of Commercial Chemical Products or Spill Residues of Either","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 - ""U"" Chemical Products","US - Washington Permissible exposure limits of air contaminants","US - Wyoming List of Highly Hazardous Chemicals, Toxics and Reactives","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 ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)","US Clean Air Act - Hazardous Air Pollutants","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 Department of Transportation (DOT) Marine Pollutants - Appendix B","US DOE Temporary Emergency Exposure Limits (TEELs)","US EPA Acute Exposure Guideline Levels (AEGLs) - Final","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 National Toxicology Program (NTP) 11th Report Part B. Reasonably Anticipated to be a Human Carcinogen","US NIOSH Recommended Exposure Limits (RELs)","US OSHA List of Highly Hazardous Chemicals, Toxics and Reactives","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 Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants","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.

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