SZABO SCANDIC

Part of Europa Biosite

Produktinformation

- Forschungsprodukte & Biochemikalien
- Zellkultur & Verbrauchsmaterial
- Diagnostik & molekulare Diagnostik
- Laborgeräte & Service

Weitere Information auf den folgenden Seiten!
See the following pages for more information!

Lieferung & Zahlungsart

siehe unsere Liefer- und Versandbedingungen

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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Dichloroacetic acid

sc-214877

Material Safety Data Sheet

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Dichloroacetic acid

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
C2-H2-Cl2-O2, CHCL2-COOH, "acetic acid, dichloro-", "bichloroacetic acid", "dichloroethanoic acid", "2, 2-dichloroacetic acid", "Urner' s Liquid"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

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

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

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK

Harmful in contact with skin.
Causes severe burns.
Risk of serious damage to eyes.
Very toxic to aquatic organisms.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ The material can produce severe chemical burns within the oral cavity and gastrointestinal tract following ingestion.
■ Ingestion of acidic corrosives may produce burns around and in the mouth.
the throat and esophagus.
■ Accidental ingestion of the material may be damaging to the health of the individual.
■ Dichloroacetic and trichloroacetic acid salts produce coma in animals.
Recovery may occur within 36 hours or death may ensue.

EYE

■ The material can produce severe chemical burns to the eye following direct contact. Vapors or mists may be extremely irritating.
■ If applied to the eyes, this material causes severe eye damage.
■ Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns.
Mild burns of the epithelia generally recover rapidly and completely.

SKIN

■ The material can produce severe chemical burns following direct contactwith the skin.
■ Skin contact with the material may be harmful; systemic effects may resultfollowing absorption.
■ The material may cause moderate inflammation of the skin either following direct contact or after a delay of some time.
Repeated exposure can cause contact dermatitis which is characterized by redness, swelling and blistering.
■ Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue.
■ 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 can cause respiratory irritation in some persons.
The body's response to such irritation can cause further lung damage.
■ Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage.
There may be dizziness, headache, nausea and weakness.
■ Inhalation of quantities of liquid mist may be extremely hazardous, even lethal due to spasm, extreme irritation of larynx and bronchi, chemical pneumonitis and pulmonary edema.

CHRONIC HEALTH EFFECTS

■ Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs.
Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.
There has been some 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.
Exposure to the material may cause concerns for humans owing to possible developmental toxic effects, on the basis that similar materials tested in appropriate animal studies provide some suspicion of developmental toxicity in the absence of signs of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not a secondary non-specific consequence of other toxic effects.
In general, alpha-halocarboxylic acids and their esters are good alkylating agents and should be handled with care.
Alkylating agents may damage the stem cell which acts as the precursor to components of the blood. Loss of the stem cell may result in pancytopenia (a reduction in the number of red and white blood cells and platelets) with a latency period corresponding to the lifetime of the individual blood cells. Granulocytopenia (a reduction in granular leukocytes) develops within days and thrombocytopenia (a disorder involving platelets), within 1-2 weeks, whilst loss of erythrocytes (red blood cells) needs months to become clinically manifest. Aplastic anaemia develops due to complete destruction of the stem cells.
Trichloroacetic acid (TCA) was shown to be a complete carcinogen in B6C3F1 mice producing hepatocellular carcinomas with male mice more sensitive than the female.
A linear-dose response relationship between TCA-induced hepatocellular nodules and proliferative lesions in male mice given the compound in drinking water (1000-2000 ppm for 1 year) was established. Hepatocellular hypertrophy with intracellular glycogen and a

marked increase in lipofuscin (indicative of massive intracellular lipid peroxidation) also developed. TCA is not carcinogenic in rats.
TCA introduced by intubation to pregnant rats caused resorption of the litter in a dose-dependent fashion whereas live foetuses showed dose-dependent reduction in weight and length, soft tissue malformations and skeletal malformations (mainly in the orbit). TCA was considered to be a developmental toxin in rats at doses greater than 330 mg/kg.
Dichloroacetic acid not possess the unusual metabolic characteristics of monochloroacetic acid.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
dichloroacetic acid	79-43-6	>98

Section 4 - FIRST AID MEASURES

SWALLOWED
· For advice, contact a Poisons Information Center or a doctor at once. · Urgent hospital treatment is likely to be needed.

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 or hair contact occurs: · Immediately flush body and clothes with large amounts of water, using safety shower if available. · Quickly remove all contaminated clothing, including footwear.

INHALED
· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested. Inhalation of vapors or aerosols (mists, fumes) may cause lung edema. Corrosive substances may cause lung damage (e.g.

NOTES TO PHYSICIAN
■ For acute or short term repeated exposures to strong acids:
· Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.
· Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling.

Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHg):	0.188 @ 20 C
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	1.563
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 full body protective clothing with breathing apparatus.
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
· Combustible.
· Slight fire hazard when exposed to heat or flame.
Combustion products include: carbon monoxide (CO), carbon dioxide (CO_2), hydrogen chloride, phosgene, 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.

PERSONAL PROTECTION
Glasses:
Chemical goggles.
Full face- shield.
Gloves:
Respirator:
Type ABE-P Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
· Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.
· Check regularly for spills and leaks.
· Clean up all spills immediately.
· Avoid breathing vapors and contact with skin and eyes.
MAJOR SPILLS
· DO NOT touch the spill material.
· 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 all personal contact, including inhalation.
· Wear protective clothing when risk of exposure occurs.

RECOMMENDED STORAGE METHODS
■ DO NOT use aluminum or galvanized containers.
Check regularly for spills and leaks.
Glass container.
· Lined metal can, Lined metal pail/drum
· Plastic pail.
For low viscosity materials
· Drums and jerricans must be of the non-removable head type.
· Where a can is to be used as an inner package, the can must have a screwed enclosure.

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
US ACGIH Threshold Limit Values (TLV)	dichloroacetic acid (Trichloroacetic acid)	1							TLV Basis: eye & upper respiratory tract irritation
US NIOSH Recommended Exposure Limits (RELs)	dichloroacetic acid (Trichloroacetic acid)	1	7						
Canada - Alberta Occupational Exposure Limits	dichloroacetic acid (Trichloroacetic acid)	1	6.7						
Canada - Nova Scotia Occupational Exposure Limits	dichloroacetic acid (Trichloroacetic acid)	1							TLV Basis: eye & upper respiratory tract irritation
Canada - Prince Edward Island Occupational Exposure Limits	dichloroacetic acid (Trichloroacetic acid)	1							TLV Basis: eye & upper respiratory tract irritation

Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	dichloroacetic acid (Trichloroacetic acid)	1	6.7			
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	dichloroacetic acid (Trichloroacetic acid)	1	7			
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	dichloroacetic acid (Trichloroacetic acid)	1	7			
Canada - British Columbia Occupational Exposure Limits	dichloroacetic acid (Trichloroacetic acid)	1				
US - Minnesota Permissible Exposure Limits (PELs)	dichloroacetic acid (Trichloroacetic acid)	1	7			
US - California Permissible Exposure Limits for Chemical Contaminants	dichloroacetic acid (Trichloroacetic acid)	1	5			
Canada - Northwest Territories Occupational Exposure Limits (English)	dichloroacetic acid (Trichloroacetic acid)	1	5	2	10	
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	dichloroacetic acid (Trichloroacetic acid)	1		2		
US - Washington Permissible exposure limits of air contaminants	dichloroacetic acid (Trichloroacetic acid)	1		3		
US - Hawaii Air Contaminant Limits	dichloroacetic acid (Trichloroacetic acid)	1	5			
US - Michigan Exposure Limits for Air Contaminants	dichloroacetic acid (Trichloroacetic acid)	1	7			
US - Alaska Limits for Air Contaminants	dichloroacetic acid (Trichloroacetic acid)	1	7			
Canada - Nova Scotia Occupational Exposure Limits	dichloroacetic acid (Dichloroacetic acid)	0.5				TLV Basis: upper respiratory tract & eye irritation;

							testicular damage
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	dichloroacetic acid (Dichloroacetic acid)	0.5		1.5			Skin, T20
Canada - Prince Edward Island Occupational Exposure Limits	dichloroacetic acid (Dichloroacetic acid)	0.5					TLV Basis: upper respiratory tract & eye irritation; testicular damage
Canada - British Columbia Occupational Exposure Limits	dichloroacetic acid (Dichloroacetic acid Revised 2005)	0.5					Skin; 2B; R
Canada - Alberta Occupational Exposure Limits	dichloroacetic acid (Dichloroacetic acid)	0.5	2.6				
US ACGIH Threshold Limit Values (TLV)	dichloroacetic acid (Dichloroacetic acid)	0.5					TLV Basis: upper respiratory tract & eye irritation; testicular damage
US - Idaho - Limits for Air Contaminants	dichloroacetic acid (Selenium compounds (as Se))		0.2				
US OSHA Permissible Exposure Levels (PELs) - Table Z1	dichloroacetic acid (Selenium compounds (as Se))		0.2				
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	dichloroacetic acid (Selenium compounds (as Se))	-	0.2	-	0.2		
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	dichloroacetic acid (Selenium compounds (as Se))		0.2				
US - Oregon Permissible Exposure Limits (Z-1)	dichloroacetic acid (Selenium compounds (as Se))	-	0.2				

ENDOELTABLE

PERSONAL PROTECTION




RESPIRATOR
•Type ABE-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

EYE
· Chemical goggles.
· Full face shield.

HANDS/FEET
■ Elbow length PVC gloves.
· When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.
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, 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.

OTHER
· Overalls.
· PVC Apron.

ENGINEERING CONTROLS
■ Local exhaust ventilation usually required. If risk of overexposure exists, wear an approved respirator.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES
Liquid.
Mixes with water.
Corrosive.
Acid.

State	Liquid	Molecular Weight	128.94
Melting Range (°F)	48- 52	Viscosity	Not Available
Boiling Range (°F)	381	Solubility in water (g/L)	Miscible
Flash Point (°F)	>230	pH (1% solution)	Not available
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapor Pressure (mmHg)	0.188 @ 20 C
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	1.563
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	4.5
Volatile Component (%vol)	100	Evaporation Rate	Not available

APPEARANCE
Colourless liquid with pungent odour; mixes with water, alcohol and ether. Exists in two crystalline forms, one melting at -4 deg C and the other at 9.7 deg C.

log Kow -0.14-1.39

Material	Value

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

· Contact with alkaline material liberates heat.
· Presence of incompatible materials.
· Product is considered stable.

STORAGE INCOMPATIBILITY

· Contact with moisture or water may generate heat.
Reacts with mild steel, galvanized steel / zinc producing hydrogen gas which may form an explosive mixture with air.
Segregate from alkalis, oxidizing agents and chemicals readily decomposed by acids, i.e. cyanides, sulfides, carbonates.
Avoid reaction with oxidizing agents, bases and strong reducing agents.

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

Section 11 - TOXICOLOGICAL INFORMATION

dichloroacetic acid

TOXICITY AND IRRITATION

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

TOXICITY	IRRITATION
Oral (rat) LD50: 2820 mg/kg	Skin(rabbit):10mg/24h(open)SEVERE
Dermal (rabbit) LD50: 510 mg/kg	Skin (rabbit): 2 mg/24h - SEVERE
	Eye (rabbit): 0.05mg(open)SEVERE

■ 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.
The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.

for trichloroacetic acid (TCA):

The acute oral, dermal and inhalation toxicity is low. This chemical is corrosive and strongly irritant to the eyes. The NOEL in a 90-day study in dogs - the most sensitive species tested - was determined as 500 ppm (approx. 30 mg/kg bw/day). The NOEL for repeated dose toxicity in a 4- month feeding study with rats was 4000 ppm (365 mg/kg bw/day), the NOEL in a 2-year feeding study in rats was 1600 ppm (80 mg/kg bw/day).
An inconsistent picture was found in tests on genotoxic action. Point-mutation tests were predominantly negative. In-vivo tests of chromosome mutations were mostly positive, but effects only appeared after high loading of the animals. The SCE test in mice was negative. The results of a micronucleus test in mice are apparently not reproducible. The end point of the sperm anomaly test is not necessarily due to genetic damage. The validity of the positive test results described for the clastogenic effects in mice suffers from the partly insufficient experimental procedure.
Drinking water studies in male and female mice to 52 or 61 weeks gave an increased incidence of tumours in the livers of the male mice only. A 2-year feeding study with rats and a drinking water study over 100 - 104 weeks in rats showed no evidence of carcinogenicity.
Reproduction toxicology investigations in rats showed maternal and embryonic toxicity from 330 mg/kg bodyweight and from 800 mg/kg also embryo-lethality. In all dose-groups there was a dose.
dependent increase in visceral anomalies, particularly in the cardiovascular system. The mean frequency of soft tissue malformations ranged from 9% at the low dose (330 mg/kg) to 97% at the high dose (1800 mg/kg/day). A NOAEL could not be established. Based on these findings TCA was considered to be developmentally toxic in the pregnant rat at doses of 330 mg/kg and above.
Considering the low exposure potential to humans, available toxicity data support a low risk to human health. The tumorigenic action in male mouse liver corresponds to the type, which leads to liver tumours preferentially in male mice via peroxisome proliferation, hepatotoxicity and liver cell proliferation.

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.

CARCINOGEN

Dichloroacetic acid	International Agency for Research on Cancer (IARC) - Agents Reviewed by the	Group	2B

	IARC Monographs		
Selenium and selenium compounds	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	3
Chlorophenols (see Polychlorophenols)	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	
Dichloroacetic acid	US EPA Carcinogens Listing	Carcinogenicity	L
Selenium and Compounds	US EPA Carcinogens Listing	Carcinogenicity	D
Dichloroacetic acid	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	L
Selenium and Compounds	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	D
Dichloroacetic acid	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	A3
dichloroacetic acid	US - Rhode Island Hazardous Substance List	IARC	
dichloroacetic acid	US - Rhode Island Hazardous Substance List	IARC	C
2,2-DICHLOROACETIC ACID	US Environmental Defense Scorecard Recognized Carcinogens	Reference(s)	P65
2,2-DICHLOROACETIC ACID	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65
POLYCYCLIC ORGANIC MATTER (POM)	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	EPA-HEN, P65-MC
SELENIUM COMPOUNDS	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	EPA-HEN
CHLOROPHENOLS	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	IARC, P65-MC
dichloroacetic acid	US - Maine Chemicals of High Concern List	Carcinogen	L
dichloroacetic acid	US - Maine Chemicals of High Concern List	Carcinogen	D
TWAPPM~	US - Maine Chemicals of High Concern List	Carcinogen	A3
VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	CA Prop 65; IRIS
PBIT_(PERS~	US - Maine Chemicals of High Concern List	Carcinogen	

SKIN

dichloroacetic acid	US ACGIH Threshold Limit Values (TLV) - Skin	Skin Designation	Yes
dichloroacetic acid	US AIHA Workplace Environmental Exposure Levels (WEELs) - Skin	Notes	TLV Basis: upper respiratory tract & eye irritation; testicular damage
dichloroacetic acid	Canada - British Columbia Occupational Exposure Limits - Skin	Notation	Skin; 2B; R
dichloroacetic acid	Canada - Alberta Occupational Exposure Limits - Skin	Substance Interaction	1

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
dichloroacetic acid	HIGH	No Data Available	LOW	HIGH

GESAMP/EHS COMPOSITE LIST - GESAMP Hazard Profiles

Name / EHS TRN A1a A1b A1 A2 B1 B2 C1 C2 C3 D1 D2 D3 E1 E2 E3 Cas No / RTECS No _____ Poly(2+)c 224 574 4 4 NR (4) NI (1) (1) (2) (1) (1) CM S 3 yclic 6 aromatics / CAS:79- 43- 6 /

Legend: EHS=EHS Number (EHS=GESAMP Working Group on the Evaluation of the Hazards of Harmful Substances Carried by Ships) NRT=Net Register Tonnage, A1a=Bioaccumulation log Pow, A1b=Bioaccumulation BCF, A1=Bioaccumulation, A2=Biodegradation, B1=Acuteaquatic toxicity LC/ECIC50 (mg/l), B2=Chronic aquatic toxicity NOEC (mg/l), C1=Acute mammalian oral toxicity LD50 (mg/kg), C2=Acutemammalian dermal toxicity LD50 (mg/kg), C3=Acute mammalian inhalation toxicity LC50 (mg/kg), D1=Skin irritation & corrosion, D2=Eye irritation& corrosion, D3=Long-term health effects, E1=Tainting, E2=Physical effects on wildlife & benthic habitats, E3=Interference with coastal amenities, For column A2: R=Readily biodegradable, NR=Not readily biodegradable. For column D3: C=Carcinogen, M=Mutagenic, R=Reprotoxic, S=Sensitising, A=Aspiration hazard, T=Target organ systemic toxicity, L=Lunginjury, N=Neurotoxic, I=Immunotoxic. For column E1: NT=Not tainting (tested), T=Tainting test positive. For column E2: Fp=Persistent floater, F=Floater, S=Sinking substances. The numerical scales start from 0 (no hazard), while higher numbers reflect increasing hazard. (GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships)

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information
Corrosivity characteristic: use EPA hazardous waste number D002 (waste code C)

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.
· 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: None Hazard class or Division: 8
Identification Numbers: UN1764 PG: II
Label Codes: 8 Special provisions: A3, A6,
A7, B2,

IB2, N34,
T8, TP2
Packaging: Exceptions: 154 Packaging: Non- bulk: 202
Packaging: Exceptions: 154 Quantity limitations: 1 L
Passenger aircraft/rail:
Quantity Limitations: Cargo 30 L Vessel stowage: Location: A
aircraft only:
Vessel stowage: Other: None
Hazardous materials descriptions and proper shipping names:
Dichloroacetic acid

Air Transport IATA:

UN/ID Number: 1764 Packing Group: II
Special provisions: None
Cargo Only
Packing Instructions: 855 Maximum Qty/Pack: 30 L
Passenger and Cargo Passenger and Cargo
Packing Instructions: Y840 Maximum Qty/Pack: 1 L
Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity
Packing Instructions: 851 Maximum Qty/Pack: 0.5 L
Shipping Name: DICHLOROACETIC ACID

Maritime Transport IMDG:

IMDG Class: 8 IMDG Subrisk: None
UN Number: 1764 Packing Group: II
EMS Number: F-A,S-B Special provisions: None
Limited Quantities: 1 L Marine Pollutant: Yes
Shipping Name: DICHLOROACETIC ACID

Section 15 - REGULATORY INFORMATION

dichloroacetic acid (CAS: 79-43-6) is found on the following regulatory lists;

"Canada - Alberta Occupational Exposure Limits","Canada - British Columbia Occupational Exposure Limits","Canada - Nova Scotia Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada - Saskatchewan Occupational Health and Safety Regulations - Designated Chemical Substances","Canada Domestic Substances List (DSL)","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 - California Proposition 65 - Carcinogens","US - California Proposition 65 - Priority List for the Development of NSRLs for Carcinogens","US - California Proposition 65 - Reproductive Toxicity","US - Maine Chemicals of High Concern List","US - New Jersey Right to Know Hazardous Substances","US ACGIH Threshold Limit Values (TLV)","US ACGIH Threshold Limit Values (TLV) - Carcinogens","US DOE Temporary Emergency Exposure Limits (TEELs)","US EPA Carcinogens Listing","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory","WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

■ Ingestion may produce health damage*.
■ Cumulative effects may result following exposure*.
■ Limited evidence of a carcinogenic effect*.
■ May possibly be harmful to the foetus/ embryo*.
* (limited evidence).

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■ 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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