

Acrylamide

sc-214492

Material Safety Data Sheet



The Power is Question

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

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Acrylamide

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

CH₂-CH-CO-NH₂, C₃H₅NO, "acrylic amide", ethylenecarboxamide, propenamide, 2-propenamide, propeneamide, "propenoic acid amide"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

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

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



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Toxic if swallowed.

May cause CANCER.

May cause SENSITISATION by skin contact.

May cause heritable genetic damage.

Possible risk of impaired fertility.

Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.

Harmful by inhalation and in contact with skin.

Irritating to eyes and skin.

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.

■ Acrylamides can cause numbness and paralysis of the extremities, "pins and needles", weakness (especially in the lower limbs), over days to weeks. There can be cold sweating, skin redness and peeling, difficulty speaking, tremor, gait disturbance, color-blindness and trouble with the eye.

EYE

■ This material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Moderate inflammation may be expected with redness; conjunctivitis may occur with prolonged exposure.

■ An 10% aqueous solution of acrylamide administered to rabbit eye produced pain and slight conjunctival irritation. There was no corneal injury. A 40% aqueous solution produced moderate pain, slight conjunctival irritation which was slow in healing and corneal injury which healed within 24 hours.

SKIN

■ Skin contact with the material may be harmful; systemic effects may result following absorption.

■ The material may cause mild but significant 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.

■ A 10% aqueous solution of acrylamide applied repeatedly to the ear or shaved intact belly of the rabbit produced no significant response. Application to an abraded area of the belly produced slight reddening and slight oedema which healed upon cessation. Local exposure effects may include hand and skin peeling, blistering, numbness.

■ 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.

■ Skin contact with the material may produce toxic effects; systemic effects may result following absorption.

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

■ Skin contact with the material is more likely to cause a sensitization reaction in some persons compared to the general population.

There is ample evidence that this material can be regarded as being able to cause cancer in humans based on experiments and other information.

Based on experiments and other information, there is ample evidence to presume that exposure to this material can cause genetic defects that can be inherited.

Ample evidence from experiments exists that there is a suspicion this material directly reduces fertility.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Repeated or prolonged exposure to acrylamides can result in multiple nervous disorders which are insidious. Inco-ordination, difficulty speaking and tremor suggests involvement of the midbrain.

<\p>

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
acrylamide	79-06-1	> 99

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 dust is inhaled, remove from contaminated area. · Encourage patient to blow nose to ensure clear breathing passages. · Ask patient to rinse mouth with water but to not drink water. · Seek immediate medical attention.

NOTES TO PHYSICIAN

■ Treat symptomatically.

for poisons (where specific treatment regime is absent):

-----BASIC TREATMENT

· Establish a patent airway with suction where necessary.
· Watch for signs of respiratory insufficiency and assist ventilation as necessary.

Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHg):	0.007 at 20 C
Upper Explosive Limit (%):	Not available.
Specific Gravity (water=1):	1.122 at 30 C
Lower Explosive Limit (%):	Not available.

EXTINGUISHING MEDIA

· Water spray or fog.
· Alcohol stable foam.
· Dry chemical powder.
· Carbon dioxide.

FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.
· Wear breathing apparatus plus protective gloves for fire only.
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 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), nitrogen oxides (NO_x), other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

Violent polymerisation may occur when heated to melting.

FIRE INCOMPATIBILITY

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

Unstable when exposed to U.V. light.

PERSONAL PROTECTION

Glasses:

Safety Glasses.

Chemical goggles.

Gloves:

1.PE/EVAL/PE

Respirator:

Particulate

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

- 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

- 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

- 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

- Rotate all stock to prevent ageing. Use on FIFO (First In-First Out) basis.
- Store in original containers.
- Keep containers securely sealed.

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	acrylamide (Acrylamide)		0.03						
Canada - British Columbia Occupational Exposure Limits	acrylamide (Acrylamide, Inhalable Revised 2005)		0.03 (V)						Skin; 2A
US - Minnesota Permissible Exposure Limits (PELs)	acrylamide (Acrylamide)		0.03						
US OSHA Permissible Exposure Levels (PELs) - Table Z1	acrylamide (Acrylamide)		0.3						
US ACGIH Threshold Limit Values (TLV)	acrylamide (Acrylamide)		0.03						TLV Basis: CNS impairment
US NIOSH Recommended Exposure Limits (RELs)	acrylamide (Acrylamide)		0.03						See Appendix A; Ca; [skin]
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	acrylamide (Acrylamide)		0.03						
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	acrylamide (Acrylamide)		0.3						

US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	acrylamide (Acrylamide)	0.03			
US - California Permissible Exposure Limits for Chemical Contaminants	acrylamide (Acrylamide)	0.03			
US - Idaho - Limits for Air Contaminants	acrylamide (Acrylamide)	0.3			
US - Hawaii Air Contaminant Limits	acrylamide (Acrylamide)	0.03			
US - Alaska Limits for Air Contaminants	acrylamide (Acrylamide)	0.03			
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	acrylamide (Acrylamide - Skin)	-	0.3	-	0.6
US - Washington Permissible exposure limits of air contaminants	acrylamide (Acrylamide)	0.03			0.09
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	acrylamide (Acrylamide fraction++ and vapour))	0.03			0.09 T20, Skin
US - Michigan Exposure Limits for Air Contaminants	acrylamide (Acrylamide)	0.03			
Canada - Prince Edward Island Occupational Exposure Limits	acrylamide (Acrylamide)	0.03			TLV Basis: CNS impairment
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	acrylamide (Acrylamide)	0.3			
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	acrylamide (Acrylamide)	0.03			
US - Oregon Permissible Exposure Limits (Z-1)	acrylamide (Acrylamide)	0.3			
Canada - Northwest Territories Occupational Exposure Limits (English)	acrylamide (Acrylamide - Skin)	0.3			0.6

Canada - Nova
Scotia
Occupational
Exposure Limits

acrylamide
(Acrylamide)

0.03

TLV Basis:
CNS
impairment

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

Particulate

Consult your EHS staff for recommendations

EYE

- Safety glasses with side shields.
- Chemical goggles.

HANDS/FEET

■ Wear chemical protective gloves, eg. PVC.

NOTE: The material may produce skin sensitization in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.

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.

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.

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

Solid.

Mixes with water.

State	Divided solid	Molecular Weight	71.08
Melting Range (°F)	184.1	Viscosity	Not Applicable
Boiling Range (°F)	257 at 3.33 kPa	Solubility in water (g/L)	Miscible
Flash Point (°F)	280.4	pH (1% solution)	Not available.
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	795.2	Vapor Pressure (mmHg)	0.007 at 20 C
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	1.122 at 30 C
Lower Explosive Limit (%)	Not available.	Relative Vapor Density (air=1)	2.45
Volatile Component (%vol)	Not available.	Evaporation Rate	Not available

ACRYLAMIDE

log Kow (Prager 1995):

-0.67

APPEARANCE

Colourless crystals or powder. Odourless. Environmental hazard. May polymerise violently on melting. Soluble in water, methanol, ethanol, acetone, chloroform and ethyl acetone. Slightly soluble in benzene, heptane.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
 - Product is considered stable.
- Presence of heat source or direct sunlight (ultra-violet radiation).
Storage in unsealed containers.
Product is considered stable under normal handling conditions.
Violent polymerisation may occur when heated to melting.

STORAGE INCOMPATIBILITY

■ Acrylamide:

- forms explosive mixtures in air when finely divided
- is thermally unstable
- may polymerise explosively (unless inhibited) under the influence of UV light, oxidisers, peroxides, vinyl polymerisation initiators or elevated temperatures (above melting point of 85 C)
- is incompatible with reducing agents, mineral acids, strong acids, oleum, ammonia, isocyanates.

Contamination with polymerization catalysts - peroxides, persulfates, oxidizing agents - also strong acids, strong alkalies, will cause polymerization with exotherm - generation of heat.

Polymerization of large quantities may be violent - even explosive.

Polymerization incidents might arise when thermally unstable initiators (including polymerization catalysts) are charged, preheated to reaction temperatures and held for considerable periods of time prior to the addition of monomers. The rate of polymerization may be affected by depleted initiator and the concentration of initiator may not be sufficient to produce controlled reaction for a particular addition rate of monomer; the concentration of the latter may reach levels at which uncontrollable polymerization occurs - this may lead to pressure-failure of the vessel seals.

Hazardous, even explosive polymerization may result from mixing with incompatible materials.

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

Section 11 - TOXICOLOGICAL INFORMATION

ACRYLAMIDE

TOXICITY AND IRRITATION

ACRYLAMIDE:

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

TOXICITY

IRRITATION

Oral (rat) LD50: 124 mg/kg Skin (rabbit): 500 mg/24h - Mild

Dermal (rabbit) LDLo: 1000 mg/kg Skin (rabbit): 50 mg/3d - Mild

Eye (rabbit): 100mg/24h - Moderate

Eye (rabbit): 10mg/30s rinse-Mild

■ Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's edema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type.

<p>

The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may cause 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.

WARNING: This substance has been classified by the IARC as Group 2A: Probably 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

ACRYLAMIDE	US Environmental Defense Scorecard Recognized Carcinogens	Reference(s)	P65
ACRYLAMIDE	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65
Acrylamide	US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors	IARC Class	2A

SKIN

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

Section 12 - ECOLOGICAL INFORMATION

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

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
acrylamide	LOW		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 _____
_____ Acrylamid 23 70 0 0 0 R 2 0 2 2 (2) 1 2 CMN D 3 e / S CAS:79- 06- 1 / AS3325000

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=Acute aquatic toxicity LC/EC150 (mg/l), B2=Chronic aquatic toxicity NOEC (mg/l), C1=Acute mammalian oral toxicity LD50 (mg/kg), C2=Acute mammalian 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=Lung injury, 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

B. Component Waste Numbers

When acrylamide 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 U007 (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

DOT:

Symbols: None Hazard class or Division: 6.1

Identification Numbers: UN2074 PG: III

Label Codes: 6.1 Special provisions: IB8, IP3, T1, TP33

Packaging: Exceptions: 153 Packaging: Non- bulk: 213

Packaging: Exceptions: 153 Quantity limitations: 100 kg

Passenger aircraft/rail:

Quantity Limitations: Cargo 200 kg Vessel stowage: Location: A aircraft only:

Vessel stowage: Other: 12

Hazardous materials descriptions and proper shipping names:

Acrylamide, solid

Air Transport IATA:

ICAO/IATA Class: 6.1 ICAO/IATA Subrisk: None

UN/ID Number: 2074 Packing Group: III

Special provisions: None

Cargo Only

Packing Instructions: 619 Maximum Qty/Pack: 200 kg

Passenger and Cargo Passenger and Cargo

Packing Instructions: 619 Maximum Qty/Pack: 100 kg

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: Y619 Maximum Qty/Pack: 10 kg

Shipping Name: ACRYLAMIDE, SOLID

Maritime Transport IMDG:

IMDG Class: 6.1 IMDG Subrisk: None

UN Number: 2074 Packing Group: III

EMS Number: F-A , S-A Special provisions: None

Limited Quantities: 5 kg

Shipping Name: ACRYLAMIDE, SOLID

Section 15 - REGULATORY INFORMATION

acrylamide (CAS: 79-06-1) 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 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 ARET (Accelerated Reduction / Elimination of Toxics) Substance List", "Canada Domestic Substances List (DSL)", "Canada Ingredient Disclosure List (SOR/88-64)", "Canada National Pollutant Release Inventory (NPRI)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "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", "OECD Representative List of High Production Volume (HPV) Chemicals", "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 - No Significant Risk Levels (NSRLs) for Carcinogens","US - California Proposition 65 - Priority List for the Development of NSRLs for Carcinogens","US - California Toxic Air Contaminant List Category II","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 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 Class A toxic air pollutants: Known and Probable Carcinogens","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 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 CAA (Clean Air Act) - HON Rule - Organic HAPs (Hazardous Air Pollutants)","US Clean Air Act - Hazardous Air Pollutants","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 Carcinogens Listing","US EPA High Production Volume Program Chemical List","US EPA Master Testing List - Index I Chemicals Listed","US EPA National Priorities List - Superfund Chemical Data Matrix (SCDM) - Hazard Ranking System - Hazardous Substance Benchmarks","US EPCRA Section 313 Chemical List","US FDA Indirect Food Additives: Adhesives and Components of Coatings - Substances for Use Only as Components of Adhesives - Adhesives","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 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 RCRA (Resource Conservation & Recovery Act) - Phase 4 LDR Rule - Universal Treatment Standards","US SARA Section 302 Extremely Hazardous Substances","US Toxic Substances Control Act (TSCA) - Inventory","US TSCA Section 8 (d) - Health and Safety Data Reporting","WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

■ Cumulative effects may result following exposure*.

* (limited evidence).

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.

This document is copyright. Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from CHEMWATCH. TEL (+61 3) 9572 4700.

Issue Date: May-15-2009

Print Date:Nov-17-2010