Safety Data Sheet - Version 5.0

Preparation Date 2/11/2013
Latest Revision Date (If Revised) 4/6/2016
SDS Expiry Date 4/5/2019

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Chemical Name Acrylic Acid
(stabilized with MEHQ)

Catalogue # A191350

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Product Uses To be used only for scientific research and development. Not for use in humans or animals.

1.3 Details of the Supplier of the Safety Data Sheet

Company Toronto Research Chemicals
2 Brisbane Road
Toronto, ON M3J 2J8
CANADA

Telephone +14166659696
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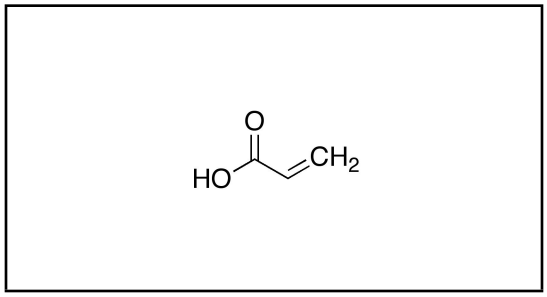
Email orders@trc-canada.com



1.4 Emergency Telephone Number

Emergency# +14166659696 between 0800-1700 (GMT-5)

2. HAZARDS IDENTIFICATION

WHMIS Classification (Canada)

B3 Combustible Liquid

D1A Very Toxic Material Causing Immediate and Serious Toxic Effects
Toxic by Ingestion/Inhalation

E Corrosive Material

WHMIS Symbols (Canada)

2.1/2.2 Classification of the Substance or Mixture and Label Elements

GHS Hazards Classification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Flammable Liquids (Category 3)
Acute Toxicity, Oral (Category 4)
Acute Toxicity, Inhalation (Category 4)
Acute Toxicity, Dermal (Category 4)
Skin Corrosion (Category 1A)
Serious Eye Damage (Category 1)
Specific Target Organ Toxicity, Single Exposure; Respiratory Tract Irritation (Category 3)
Hazardous to the Aquatic Environment, Acute Hazard (Category 1)

EU Classification (According to EU Regulation 67/548/EEC)

Flammable. Harmful by inhalation, in contact with skin and if swallowed. Causes severe burns. Risk of serious damage to the eyes. Irritating to the respiratory system. Very toxic to aquatic organisms.

EU Risk and Safety Statements (According to EU Regulation 67/548/EEC)

Hazard Statements	Hazard Codes
Highly Flammable	F

This Safety Data Sheet contains 16 sections. All 16 sections must be present for this document to be valid.

Corrosive	C
Harmful	Xn
Environmental Hazard	N

Risk Codes and Phrases

R10	Flammable.
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed.
R35	Causes severe burns.
R41	Risk of serious damage to the eyes.
R37	Irritating to the respiratory system.
R50	Very toxic to aquatic organisms.

Safety Precaution Codes and Phrases

S23	Do not breathe spray.
S61	Avoid release to the environment. Refer to special instructions.
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

GHS Hazards Identification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Signal Word Danger

GHS Hazard Statements

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H332	Harmful if inhaled.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.

GHS Precautionary Statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P304/P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310	
P305/P351/P338	Immediately call a POISON CENTER or doctor/physician
	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Unclassified Hazards/Hazards Not Otherwise Classified

No data available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Molecular Formula: $C_3H_4O_2$ **Molecular Weight:** 72.06

CAS Registry #: 79-10-7 **EC#:** 201-177-9

Synonyms

2-Propenoic Acid; Acroleic Acid; Ethylenecarboxylic Acid; NSC 4765; Propenoic Acid; Vinylformic Acid;

3.2 Mixtures

Ingredient	CAS#	EC#	Index-No.	%Composition
Acrylic acid	79-10-7	201-177-9	607-061-8	<=100%
Mequinol	150-76-5	205-769-8	604-044-00-7	>= 0.018 - <= 0.02%

4. FIRST AID MEASURES

4.1 Description of First Aid Measures

General Advice
If medical attention is required, show this safety data sheet to the doctor.

If Inhaled
If inhaled, move casualty to fresh air. If not breathing, give artificial respiration and consult a physician.

In Case of Skin Contact
Remove contaminated clothing and shoes. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In Case of Eye Contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If Swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Do NOT induce vomiting unless advised to do so by a physician or Poison Control Center. Seek medical attention.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

Burning sensation, cough, wheezing, laryngitis, shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed

No data available.

5. FIREFIGHTING MEASURES

5.1 Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special Hazards Arising from the Substance or Mixture

Carbon oxides

5.3 Advice for Firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further Information

No data available.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use recommended personal protective equipment (see Section 8). Adequate ventilation must be provided to ensure vapours or mists are not inhaled. Vapours are heavier than air and may accumulate in low areas. All sources of ignition, including sources of static discharge, must be removed from area.

6.2 Environmental Precautions

Material should not be allowed to enter the environment. Prevent further spillage or discharge into drains, if safe to do so.

6.3 Methods and Materials for Containment and Cleaning Up

Contain the spill and then collect using non-combustible absorbent material (such as clay, diatomaceous earth, vermiculite or other appropriate material). Place material in a suitable, sealable container and then dispose according to local/national regulations and guidance (see Section 13).

6.4 Reference to Other Sections

For protective equipment, refer to Section 8. For disposal, see Section 13.

7. HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Ventilation and proper handling are to be used to prevent the formation of vapours and mists. Remove all sources of ignition and take precautionary measures to prevent the buildup of electrostatic

discharge (ground and bond containers as appropriate). No smoking, eating or drinking around this material. Wash hands after use.

7.2 Conditions for Safe Storage, Including any Incompatibilities

Ensure container is kept securely closed before and after use. Keep in a well ventilated area and do not store with strong oxidizers or other incompatible materials (see Section 10).

Storage conditions: Amber Vial, -20˚C Freezer, Under Inert Atmosphere

7.3 Specific End Uses

For scientific research and development only. Not for use in humans or animals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Acrylic acid	79-10-7	TWA	2.000000 ppm 5.900000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)

Remarks Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required
Substance may be readily absorbed through intact skin

TWA	2.000000 ppm	Canada. British Columbia OEL

Adverse reproductive effect
Contributes significantly to the overall exposure by the skin route.

TWAEV	2.000000 ppm 5.900000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants

Skin (percutaneous)

TWA	2.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)

8.2 Exposure Controls

Appropriate Engineering Controls
A laboratory fumehood or other appropriate form of local exhaust ventilation should be used to avoid exposure.

Personal Protective Equipment
All recommendations below are advisory in nature and a risk assessment should be performed by the employer/end user prior to use of this product. The type of protective equipment must be selected based on the amount and concentration of the dangerous material being used in the workplace.

Eye/Face Protection
Safety glasses or safety goggles. All equipment should have been tested and approved under appropriate standards, such as NIOSH (US), CSA (Canada), or EN 166 (EU).

Skin Protection
Gloves should be used when handling this material. Gloves are to be inspected prior to use. Contaminated gloves are to be removed using proper glove removal technique so that the outer surface of the glove does not contact bare skin. Dispose of contaminated gloves after use in compliance with good laboratory practices and local requirements.

Gloves used for incidental exposures (splash protection) should be designated as “low chemical resistant” or “waterproof” by EU standard EN 374. Unrated gloves are not recommended.
Suggested gloves: AnsellPro nitrile gloves style 92-500 or 92-600, 5 mil thickness.
Penetration time has not been determined.

Gloves used for prolonged direct exposure (immersion) should be designated “chemical resistant” as per EN 734 with the resistance codes corresponding to the anticipated use of the material.
Suggested gloves: AnsellPro Viton/Butyl gloves style 38-612, 4/8 mil thickness.
Penetration time has not been determined.

These recommendations may not apply if the material is mixed with any other chemical, or dissolved into a solution. A risk assessment must be performed to ensure the gloves will still offer acceptable protection.

Body Protection
Fire resistant (Nomex) lab coat or coveralls.

Respiratory Protection
Recommended respirators are NIOSH-approved OV/Multi-Gas/P95 or CEN-approved ABEK-P2 respirators. These are to be only used as a backup to local exhaust ventilation or other engineering controls. If the respirator is the only means of protection, a full-face supplied air respirator must be used.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

A) Appearance
Colourless to Clear Pale Yellow Oil

B) Odour
Stench

C) Odour Threshold
No data available

D) pH
No data available

E) Melting Point/Freezing Point
No data available

F) Initial Boiling Point/Boiling Range
No data available

G) Flash point
46 °C (115 °F) - closed cup

H) Evaporation Rate
No data available

I) Flammability (Solid/Gas)
No data available

J) Upper/Lower Flammability/Explosive Limits
No data available

K) Vapour Pressure
No data available

L) Vapour Density
2.49 (Air = 1.0)

M) Relative Density
No data available

N) Solubility
Chloroform, Ethyl Acetate

O) Partition Coefficient: n-octanol/water
log Pow: 0.46

P) Auto-Ignition Temperature
No data available

Q) Decomposition Temperature
No data available

R) Viscosity
No data available

S) Explosive Properties
No data available

T) Oxidizing Properties
No data available

9.2 Other Information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available.

10.2 Chemical Stability
Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions
Reacts violently in contact with acids, amines, driers, polymerisation accelerators and easily oxidizing materials.

10.4 Conditions to Avoid
Heat, flames and sparks.

10.5 Incompatible Materials
Strong oxidizing agents, Strong bases, Oxygen, Polymerizing initiators, Peroxides.

10.6 Hazardous Decomposition Products
In the event of fire: See section 5. **Other decomposition products:** No data available.

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

A) Acute Toxicity

Oral LD50: Rat - 357 mg/kg

Inhalation LC50: Rat - 4 h - > 5.1 mg/l

Dermal LD50: No data available.

B) Skin Corrosion/Irritation

No data available

C) Serious Eye Damage/Irritation

Corrosive - causes skin and eye burns. May also cause respiratory tract damage.

D) Respiratory or Skin Sensitization

No data available

E) Germ Cell Mutagenicity

No data available

F) Carcinogenicity

Limited evidence of a carcinogenic effect.
This compound has been designated as Group 3: Not classifiable as to its carcinogenicity in humans.

G) Reproductive Toxicity/Teratogenicity

No data available

H) Single Target Organ Toxicity - Single Exposure

No data available

I) Single Target Organ Toxicity - Repeated Exposure

No data available

J) Aspiration Hazard

No data available

K) Potential Health Effects and Routes of Exposure

Inhalation

May be harmful if inhaled. Causes respiratory tract irritation.

Ingestion

Harmful if swallowed.

Skin

Harmful if absorbed through skin. Causes skin burns.

Eyes

Causes severe eye burns and possible permanent eye damage.

L) Signs and Symptoms of Exposure

Burning sensation, cough, wheezing, laryngitis, shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been thoroughly investigated.

M) Additional Information

RTECS: AS4375000

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to algae:
static test EC50 - Desmodesmus subspicatus (green algae) - 0.205 mg/l - 72 h

12.2 Persistance and Degradability

Result: 80 - 90 % - Readily biodegradable
Method: OECD Test Guideline 301D

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Results of PBT and vPvB Assessment

No data available.

12.6 Other Adverse Effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

A) Product

Product may be burned in an incinerator equipped with afterburner and scrubber. Excess and expired materials are to be offered to a licensed hazardous material disposal company. Ensure that all Federal and Local regulations regarding the disposal and destruction of this material are followed.

B) Contaminated Packaging

Dispose of as above.

C) Other Considerations

Product is not to be disposed of in sanitary sewers, storm sewers, or landfills.

14. TRANSPORT INFORMATION

14.1 UN Number

DOT (US): UN2218 IATA: UN2218 IMDG: UN2218 ADR/RID: UN2218

14.2 UN Proper Shipping Name

DOT (US)/IATA:
Acrylic Acid, stabilized

IMDG/ARD/RID:
ACRYLIC ACID, STABILIZED

14.3 Transport Hazard Class(es)

DOT (US): 8 (3) IATA: 8 (3) IMDG: 8 (3) ADR/RID: 8 (3)

14.4 Packing Group

DOT (US): II IATA: II IMDG: II ADR/RID: II

14.5 Environmental Hazards

DOT (US): None IATA: None IMDG: None ADR/RID: None

14.6 Special Precautions for User

None

15. REGULATORY INFORMATION

This safety data sheet complies with the requirements of WHMIS (Canada), OSHA 1910.1200 (US), and EU Regulation EC No. 1907/2006 (European Union).

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

A) Canada

DSL/NDSL Status: This product or a component of this product is registered on the Canadian DSL/NDSL.

B) United States

TSCA Status: This product or a component is listed on the US EPA TSCA.

C) European Union

ECHA Status: This product or a component is registered with the EU ECHA.

15.2 Chemical Safety Assessment

No data available

16. OTHER INFORMATION

16.1 Revision History

Original Publication Date: 2/11/2013

16.2 List of Abbreviations

LD50	Median lethal dose of a substance required to kill 50% of a test population.
LC50	Medial lethal concentration of a substance required to kill 50% of a test population.
LDLo	Lowest known lethal dose
TDLo	Lowest known toxic dose
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances

16.3 Further Information

 The above information is believed to be correct to the best of our knowledge, but is to be only used as a guide. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Please take all due care when handling this product.