



1. PRODUCT AND COMPANY IDENTIFICATION

Company

Arkema Inc.
900 First Avenue
King of Prussia, Pennsylvania 19406

Acrylic Monomers

Customer Service Telephone Number: 1-800-338-1015
(Monday through Friday, 8:30 AM to 5:30 PM EST)

Emergency Information

Transportation: CHEMTREC: (800) 424-9300
(24 hrs., 7 days a week)
Medical: Rocky Mountain Poison Center: (866) 767-5089
(24 hrs., 7 days a week)

Product Information

Product name: NORSOCRYL® 104
Synonyms: Not available
Molecular formula: Mixture
Chemical family: methacrylates
Molecular weight: 198 g/mol
Product use: Chemical intermediate

2. HAZARDS IDENTIFICATION

Emergency Overview

Color: colourless
Physical state: liquid
Odor: Slightly irritating

WARNING!
FLAMMABLE LIQUID AND VAPOR.
MAY CAUSE ALLERGIC SKIN REACTION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.
MAY CAUSE HEADACHE, NAUSEA, DIZZINESS, DROWSINESS, LOSS OF CONSCIOUSNESS.
PROLONGED CONTACT MAY CAUSE SHORT-TERM LOSS OF FEELING IN THE FINGERS.

Potential Health Effects

Primary routes of exposure:
Inhalation and skin contact.

Signs and symptoms of acute exposure:
May cause irritation of respiratory tract. Prolonged or repeated exposure may cause: Allergic skin reaction: redness, rash. Central nervous system effects: headache, nausea, dizziness, drowsiness, loss of consciousness. Inhalation may cause symptoms of: breathing difficulties.

Skin:



Practically nontoxic. Slightly irritating. May cause allergic skin reaction. (based on components)

Inhalation:

Practically nontoxic. (based on components)

Eyes:

Slightly irritating. (based on components)

Ingestion:

No more than slightly toxic. (based on components)

Repeated exposure:

Effects have been reported or are anticipated after prolonged or repeated exposure. Can cause: nervous system effects, loss of feeling, (affects fingers), (based on human experience).

Medical conditions aggravated by overexposure:

Respiratory disease or diminished respiratory capacity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Wt/Wt	OSHA Hazardous
2-Propenoic acid, 2-methyl-, methyl ester	80-62-6	> 47 - < 53 %	Y
(2-methacryloxyethyl) heteromonocycle	ACCN# 13855*	> 47 - < 53 %	Y
2-Imidazolidinone, 1-(2-hydroxyethyl)-	3699-54-5	> 1 - < 5 %	N
Phenol, 4-methoxy-	150-76-5	> 680 - < 780 PPM	Y
10H-Phenothiazine	92-84-2	> 50 - < 150 PPM	Y

The substance(s) marked with a "Y" in the Hazard column above, are those identified as hazardous chemicals under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

*The specific chemical identity is withheld because it is trade secret information of Arkema Inc.

This material is classified as hazardous under Federal OSHA regulation.

4. FIRST AID MEASURES**Inhalation:**

If inhaled, remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Skin:

In case of contact, immediately flush skin with soap and plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eyes:

Immediately flush eye(s) with plenty of water.



Ingestion:

If swallowed, DO NOT induce vomiting. Get medical attention. Never give anything by mouth to an unconscious person.

5. FIRE-FIGHTING MEASURES

Flash point 36 °F (2 °C) (closed cup)

Auto-ignition temperature: 806 °F (430 °C)

Lower flammable limit (LFL): 2.1 %(V)

Upper flammable limit (UFL): 12.5 %(V)

Extinguishing media (suitable):

Water spray, Carbon dioxide (CO₂), Foam, Dry chemical

Protective equipment:

Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand / NIOSH approved or equivalent).

Further firefighting advice:

Fight fire from a protected location.

Explosion hazard

Fire fighting equipment should be thoroughly decontaminated after use.

Fire and explosion hazards:

A large amount of heat can be generated when monomers are exposed to a fire.

Closed containers of this material may explode when subjected to heat from surrounding fire.

Cool closed containers exposed to fire with water spray.

When burned, the following hazardous products of combustion can occur:

Carbon oxides

6. ACCIDENTAL RELEASE MEASURES

In case of spill or leak:

Prevent further leakage or spillage if you can do so without risk. Evacuate area of all unnecessary personnel.

Ventilate the area. Eliminate all ignition sources. Avoid generation of vapors. Contain and collect spillage with non-combustible absorbent material such as sodium bicarbonate, sodium carbonate, calcium carbonate, clean sand or non-acidic clay and then wet down (dampen) the mixture with water. Sweep or scoop up using non-sparking tools and place into suitable properly labeled containers for prompt disposal. The sweepings should be wetted down further with water. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

7. HANDLING AND STORAGE

Handling

General information on handling:

Keep away from heat, sparks and flames.
Avoid breathing vapor or mist.
Avoid prolonged or repeated contact with skin.
Keep container closed.
Wash thoroughly after handling.
Use only with adequate ventilation.
Check that all equipment is properly grounded and installed to satisfy electrical classification requirements.
Container hazardous when empty.
Emptied container retains vapor and product residue.
Follow label warnings even after container is emptied.
RESIDUAL VAPORS MAY EXPLODE ON IGNITION.
DO NOT CUT, DRILL, GRIND, OR WELD ON OR NEAR THIS CONTAINER.
Improper disposal or reuse of this container may be dangerous and/or illegal.

Storage

General information on storage conditions:

This product should be stored in a closed container, away from direct sunlight, at ambient temperatures. An air space is required above the liquid in all containers; avoid storage under an oxygen-free atmosphere. Store in well ventilated area away from heat and sources of ignition such as flame, sparks and static electricity. Ensure that all storage and handling equipment is properly grounded and installed to satisfy electrical classification requirements. Static electricity may accumulate when transferring material. All metal and groundable storage containers, including but not limited to drums, cylinders, Returnable Intermodal Bulk Containers (RIBCs) and Class C Flexible Intermodal Bulk Containers (FIBCs) must be bonded and grounded during filling and emptying operations. Observe all federal, state and local regulations and National Fire Protection Association (NFPA) Codes which pertain to the specific local conditions of storage and use, including OSHA 29 CFR 1910.106 and NFPA 30, 70, 77, and 497. Storage of this product above the maximum temperature tolerance reduces the shelf life.

Storage stability – Remarks:

The typical shelf-life for this product is 12 months. The stability of this product should be checked periodically; typically every 90 days for bulk containers. Materials recommended for packaging include: stainless steel, aluminum, glass, HDPE, PP or PTFE.

Storage incompatibility – General:

This material polymerizes exothermically in the presence of heat, contamination, oxygen free atmosphere, free radicals, peroxides and inhibitor depletion liberating heat.

Temperature tolerance – Do not store above:

86 °F (30 °C)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Guidelines:

2-Propenoic acid, 2-methyl-, methyl ester (80-62-6)

US. ACGIH Threshold Limit Values



Time Weighted Average (TWA): 50 ppm
Short Term Exposure Limit (STEL): 100 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

PEL: 100 ppm (410 mg/m3)

Only those components with exposure limits are printed in this section. Limits with skin contact designation above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required. Limits with a sensitizer designation above mean that exposure to this material may cause allergic reactions.

Engineering controls:

Investigate engineering techniques to reduce exposures below airborne exposure limits or to otherwise reduce exposures. Provide ventilation if necessary to minimize exposures or to control exposure levels to below airborne exposure limits (if applicable see above). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

Respiratory protection:

Avoid breathing vapor or mist. Where airborne exposure is likely or airborne exposure limits are exceeded (if applicable, see above), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components (full facepiece recommended). Consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure or where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Skin protection:

Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact. When handling this material, gloves of the following type(s) should be worn: butyl-rubber. Wear face shield and chemical resistant clothing such as a rubber apron when splashing may occur. Rinse immediately if skin is contaminated. Wash contaminated clothing and clean protective equipment before reuse. Wash thoroughly after handling.

Eye protection:

Use good industrial practice to avoid eye contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color: colourless
Physical state: liquid
Odor: Slightly irritating
pH: not determined
Density: not determined
Specific Gravity (Relative 1.047 (68 °F(20 °C))

density):

Vapor pressure:	28.9 mmHg (68 °F (20 °C))
Vapor density:	not determined
Boiling point/boiling range:	212 °F (100 °C)
Melting point/range:	not determined
Freezing point:	41 °F (5 °C)
Solubility in water:	partly soluble
Solubility in other solvents: [qualitative and quantitative]	Soluble in most organic solvents
Refractive index:	1.4563 77 °F (25 °C)
Viscosity, dynamic:	3 mPa.s 68 °F (20 °C)
Molecular weight:	198 g/mol

10. STABILITY AND REACTIVITY**Stability:**

This material is chemically stable under normal and anticipated storage, handling and processing conditions. However, this material can undergo hazardous polymerization. See HANDLING AND STORAGE section of this MSDS for specified conditions.

Materials to avoid:

Free radical generators
Peroxides
Contamination
Acids
Bases
Oxidizing agents
Reducing agents
Organic Peroxide

Conditions / hazards to avoid:

An uncontrolled polymerization may produce a rapid release of energy with the potential for an explosion of unvented closed containers or inadequately vented containers. This material polymerizes exothermically in the presence of heat, contamination, oxygen free atmosphere, free radicals, peroxides and inhibitor depletion liberating heat. Hazardous polymerization may occur upon depletion of inhibitor.

Hazardous decomposition products:

Thermal decomposition giving toxic products
Carbon oxides

11. TOXICOLOGICAL INFORMATION

Data on this material and/or its components are summarized below.

Data for NORSOCRYL® 104

Skin Sensitization:

(guinea pig) Skin allergy was observed. (Weak response)

Genotoxicity

Assessment in Vitro:

No genetic changes were observed in a laboratory test using: bacteria

Data for 2-Propenoic acid, 2-methyl-, methyl ester (80-62-6)

Acute toxicity

Oral:

Practically nontoxic. (rat) LD50 = 7,900 - 9,400 mg/kg.

Dermal:

Practically nontoxic. (rabbit) LD50 > 5,000 mg/kg.

Inhalation:

Practically nontoxic. (rat) 4 h LC50 = 17 - 67 mg/l.

Practically nontoxic. (rat) 2 h LC50 = 71 mg/l.

Signs/effects reported after acute exposure. signs: respiratory irritation, breathing difficulties, anesthetic effects

Skin Irritation:

Slightly irritating. (rabbit)

Eye Irritation:

Slightly irritating. (rabbit)

Possible cross sensitization with other acrylates and methacrylates

Repeated dose toxicity

Prolonged inhalation administration to rat and mouse / affected organ(s): bone marrow, kidney, liver, nasal tissues, respiratory tract, central nervous system, peripheral nervous system, olfactory tissue / signs: decreased survival / (extent of injury depends on severity of exposure)

Repeated oral administration to rat / affected organ(s): kidney, liver, stomach, nervous system

Prolonged inhalation administration to rat and hamster / affected organ(s): olfactory tissue

Prolonged drinking water administration to rat / affected organ(s): kidney

Repeated dermal application administration to rat, rabbit / signs: irritation

Carcinogenicity

Chronic inhalation administration to rat and mouse / affected organ(s): lung, upper respiratory tract /

signs: fibrosis, nasal lesions affecting the sense of smell / No increase in tumor incidence was reported. (increased mortality)

Chronic drinking water administration to rat / No increase in tumor incidence was reported.

Repeated dermal administration to rat / affected organ(s): skin / No increase in tumor incidence was reported.

Repeated dietary administration to dog / No increase in tumor incidence was reported.

Genotoxicity

Assessment in Vitro:

No genetic changes were observed in laboratory tests using: bacteria

Both positive and negative responses for genetic changes were observed in laboratory tests using: animal cells

Genotoxicity

Assessment in Vivo:

No genetic changes were observed in laboratory tests using: mice

Developmental toxicity

Exposure during pregnancy. inhalation (rat and mouse) / No birth defects were observed. (delays in development, levels produced toxic effects in the mothers and offspring)

Exposure during pregnancy. oral (rabbit) / No birth defects were observed.

Reproductive effects

Reproduction test. inhalation (mouse) / No toxicity to reproduction

Reproduction Test. oral (rat) / No toxicity to reproduction

Human experience

General:

Epidemiology studies have not shown an increase in cancer .

Human experience

Inhalation:

Respiratory system: irritation, asthma-like symptoms. (based on reports of occupational exposure to workers)
Dust and/or vapor are reported to cause irritation when proper industrial hygiene controls/procedures are not used.

Human experience

Skin contact:

Skin: dermatitis, numbness, tingling, peripheral neuropathy. Skin allergy was observed. (based on reports of occupational exposure to workers)

Human experience

Eye contact:

Eyes: Lachrymation, irritation. (based on reports of occupational exposure to workers)

Data for (2-methacryloxyethyl) heteromonocycle (ACCN# 13855)

Acute toxicity

Oral:

No more than slightly toxic. (rat) LD50 > 2,000 mg/kg.

Skin Irritation:

Practically non-irritating. (rabbit)

12. ECOLOGICAL INFORMATION

Chemical Fate and Pathway

Data on this material and/or its components are summarized below.

Data for NORSOCRYL® 104

Stability in water:

@pH 1.2 = 0 % hydrolysis ()

Biodegradation:

Partially biodegradable. (28 d) biodegradation 60 %

Data for 2-Propenoic acid, 2-methyl-, methyl ester (80-62-6)

Octanol Water Partition Coefficient:

log Pow = 1.38

Ecotoxicology

Data on this material and/or its components are summarized below.

Data for NORSOCRYL® 104

Aquatic invertebrates:

No more than slightly toxic. Daphnia magna (Water flea) 48 h EC50 > 200 mg/l

Data for 2-Propenoic acid, 2-methyl-, methyl ester (80-62-6)

Aquatic toxicity data:

Practically nontoxic. Pimephales promelas (fathead minnow) 96 h LC50 between 159 - 499 mg/l

Practically nontoxic. Lepomis macrochirus (Bluegill sunfish) 96 h LC50 between 232 - 368 mg/l

Practically nontoxic. Poecilia reticulata (guppy) 96 h LC50 = 368 mg/l

Practically nontoxic. Carassius auratus (goldfish) 96 h LC50 between 277 - 423 mg/l

No more than slightly toxic. Oncorhynchus mykiss (rainbow trout) 96 h LC50 > 79 mg/l

Algae:

Practically nontoxic. Blue-green algae IC (growth rate) = 120 mg/l

Practically nontoxic. Green algae 96 h EC50 = 170 mg/l

Chronic toxicity to fish:

Danio rerio (zebra fish) 35 d NOEC (Early-life Stage) 9.4 mg/l

Chronic toxicity to aquatic invertebrates:

Daphnia magna (Water flea) 21 d No effect concentration 37 mg/l

Chronic toxicity to microorganisms:



Bacteria 28 d (No effect concentration) 100 mg/l

Data for (2-methacryloxyethyl) heteromonocycle (ACCN# 13855)**Aquatic toxicity data:**

Practically nontoxic. Danio rerio (zebra fish) 96 h LC50 > 100 mg/l

Algae:

Practically nontoxic. Algae 72 h EC50 (growth rate) 480 mg/l

Practically nontoxic. Algae 72 h EC50 (biomass) 270 mg/l

13. DISPOSAL CONSIDERATIONS**Waste disposal:**

Disposal via incineration is recommended. Dispose of in accordance with federal, state and local regulations. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

14. TRANSPORT INFORMATION**US Department of Transportation (DOT)**

UN Number : 1247
Proper shipping name : Methyl methacrylate monomer, stabilized
Class : 3
Packaging group : II
Marine pollutant : no
Reportable quantity : 1000 lbs (Methyl methacrylate monomer, stabilized)

International Maritime Dangerous Goods Code (IMDG)

UN Number : 1247
Proper shipping name : METHYL METHACRYLATE MONOMER, STABILIZED
Technical name : (MIXTURE)
Class : 3
Packaging group : II
Marine pollutant : no
Flash point : 36 °F (2 °C) closed cup

15. REGULATORY INFORMATION**Chemical Inventory Status**

EU. EINECS	EINECS	Conforms to
US. Toxic Substances Control Act	TSCA	The components of this product are all on the TSCA Inventory.



Australia. Industrial Chemical (Notification and Assessment) Act	AICS	Conforms to
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 144)	DSL	All components of this product are on the Canadian DSL list.
Japan. Kashin-Hou Law List	ENCS (JP)	Conforms to
Korea. Existing Chemicals Inventory (KECI)	KECI (KR)	Conforms to
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	PICCS (PH)	Conforms to
China. Inventory of Existing Chemical Substances	IECSC (CN)	Conforms to
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	NZIOC	Conforms to

United States – Federal Regulations**SARA Title III – Section 302 Extremely Hazardous Chemicals:**

The components in this product are either not SARA Section 302 regulated or regulated but present in negligible concentrations.

SARA Title III - Section 311/312 Hazard Categories:

Acute Health Hazard, Chronic Health Hazard, Fire Hazard, Reactivity Hazard

SARA Title III – Section 313 Toxic Chemicals:

<u>Chemical Name</u>	<u>CAS-No.</u>	<u>De minimis concentration</u>	<u>Reportable threshold:</u>	
2-Propenoic acid, 2-methyl-, methyl ester	80-62-6		1.0 %	10000 lbs (Otherwise used (non-manufacturing/processing)) 25000 lbs (Manufacturing and processing)

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - Reportable Quantity (RQ):

<u>Chemical Name</u>	<u>CAS-No.</u>	<u>Reportable quantity</u>
2-Propenoic acid, 2-methyl-, methyl ester	80-62-6	1000 lbs

OSHA Regulated Carcinogens (NTP, IARC, OSHA Listed):**NTP:**

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.



IARC:

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA:

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

United States – State Regulations

New Jersey Right to Know

<u>Chemical Name</u>	<u>CAS-No.</u>
2-Propenoic acid, 2-methyl-, methyl ester	80-62-6

New Jersey Right to Know – Special Health Hazard Substance(s)

<u>Chemical Name</u>	<u>CAS-No.</u>
2-Propenoic acid, 2-methyl-, methyl ester	80-62-6

Pennsylvania Right to Know

<u>Chemical Name</u>	<u>CAS-No.</u>
2-Propenoic acid, 2-methyl-, methyl ester	80-62-6
(2-methacryloxyethyl) heteromonocycle	ACCN# 13855

Pennsylvania Right to Know – Environmentally Hazardous Substance(s)

<u>Chemical Name</u>	<u>CAS-No.</u>
2-Propenoic acid, 2-methyl-, methyl ester	80-62-6

California Prop. 65

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive defects.

16. OTHER INFORMATION

Latest Revision(s):

Revised Section(s):	Updated Corporate Address Change and Rocky Mountain Poison Center Phone Number
Reference number:	000000024224
Date of Revision:	07/11/2011
Date Printed:	07/11/2011

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Material Safety Data Sheet

NORSOCRYL® 104

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