1. Identification

1.1. Product identifier

Trade name: NOROX® MCP FRED

1.2. Recommended use of the chemical and restrictions on use

Relevant applications identified: polymerization initiator

1.3. Details of the supplier of the safety data sheet

Company: United Initiators, Inc.
334 Phillips 311 Rd.
Helena, AR 72342-9033
USA

Telephone: 870-572-2935

Telefax: 870-572-1416

E-mail address: Cs-initiators.nafta@united-in.com

1.4. 24 HOUR EMERGENCY TELEPHONE NUMBERS:

CHEMTREC - US & CANADA: 800-424-9300

CHEMTREC INTERNATIONAL: +1 703-527-3887 **(collect calls accepted)**

Product Regulatory Services : 800-231-2702

2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation 29CFR 1910.1200

Flammable liquids	Category 4	H227
Organic peroxides	Type D	H242
Acute toxicity (Oral)	Category 4	H302
Acute toxicity (Inhalation)	Category 3	H331
Skin corrosion	Category 1A	H314
Serious eye damage	Category 1	H318
Reproductive toxicity	Category 2	H361
Specific target organ toxicity - repeated exposure (Inhalation)	Category 2	H373
Acute aquatic toxicity	Category 3	H402
Chronic aquatic toxicity	Category 2	H411

2.2. Label elements

Statutory basis: Classification according to Regulation 29CFR 1910.1200

Symbol(s):

Signal word	Danger
Hazard statement	H227 - Combustible liquid. H242 - Heating may cause a fire. H302 - Harmful if swallowed. H314 - Causes severe skin burns and eye damage. H331 - Toxic if inhaled. H361 - Suspected of damaging fertility or the unborn child. H373 - May cause damage to organs through prolonged or repeated exposure if inhaled. H411 - Toxic to aquatic life with long lasting effects.
Precautionary statement: Prevention	P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P220 - Keep/Store away from clothing/ strong acids, bases, heavy metal salts and other reducing substances /combustible materials. P234 - Keep only in original container. P260 - Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. P264 - Wash skin thoroughly after handling. P270 - Do not eat, drink or smoke when using this product. P271 - Use only outdoors or in a well-ventilated area. P273 - Avoid release to the environment. P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection.
Precautionary statement: Reaction	P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 - Immediately call a POISON CENTER or doctor/ physician. P363 - Wash contaminated clothing before reuse. P370 + P378 - In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish. P391 - Collect spillage.
Precautionary statement: Storage	P403 + P233 - Store in a well-ventilated place. Keep container tightly closed. P405 - Store locked up. P410 - Protect from sunlight. P411 - Store at temperatures not exceeding 38°C (100°F). P235 - Keep cool. P420 - Store away from other materials.
Precautionary statement: Disposal	P501 - Dispose of contents/ container to an approved waste disposal plant.

2.3. Other hazards

None known.

3. Composition/information on ingredients

• Methyl ethyl ketone peroxide 16% - 17%

CAS-No. 1338-23-4

Flammable liquids	Category 4
Organic peroxides	Type D

Acute toxicity (Oral)	Category 4
Skin corrosion	Category 1B
Serious eye damage	Category 1

• Cumene hydroperoxide 41% - 44%

CAS-No. 80-15-9

Flammable liquids	Category 4
Organic peroxides	Type E
Acute toxicity (Oral)	Category 4
Acute toxicity (Inhalation)	Category 3
Acute toxicity (Dermal)	Category 4
Skin corrosion	Category 1A
Serious eye damage	Category 1
Specific target organ toxicity - repeated exposure (Inhalation)	Category 2
Chronic aquatic toxicity	Category 2

• Dimethyl phthalate 17% - 33%

CAS-No. 131-11-3

Acute Tox. 4 (Inhalation: vapours)	Category 4

• Phlegmatizer 3% - 14%

Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

• Cumene 4% - 5%

CAS-No. 98-82-8

Flammable liquids	Category 3
Specific target organ toxicity - single exposure (Respiratory system)	Category 3
Chronic aquatic toxicity	Category 2
Aspiration toxicity	Category 1

• Acetophenone 1% - 3%

CAS-No. 98-86-2

Acute toxicity (Oral)	Category 4
Eye irritation	Category 2A

• Methyl ethyl ketone 0% - 1%

CAS-No. 78-93-3

Flammable liquids	Category 2
Eye irritation	Category 2A
Specific target organ toxicity - single exposure (Central nervous system)	Category 3

• Hydrogen peroxide 0% - 1%

CAS-No. 7722-84-1

Oxidizing liquids	Category 1
Acute toxicity (Oral)	Category 4
Skin corrosion	Category 1A
Serious eye damage	Category 1
Specific target organ toxicity - single exposure (Respiratory system)	Category 3
Chronic aquatic toxicity	Category 3

• N-methyl-2-pyrrolidone <= 1%

CAS-No. 872-50-4

Flammable liquids	Category 4
Skin irritation	Category 2
Eye irritation	Category 2A
Reproductive toxicity	Category 2
Specific target organ toxicity - single exposure (Respiratory system)	Category 3

Other information
This material is classified as hazardous under OSHA regulations.

4. First aid measures

4.1. Description of first aid measures

Inhalation
If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If unconscious, evaluate the need for artificial respiration. Get immediate medical attention.

Skin contact
Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Obtain medical attention immediately if symptoms occur. Wash clothing before reuse.

Eye contact
In case of contact, immediately flush eyes with plenty of water. Obtain medical attention if irritation develops.

Ingestion
If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms
None known

4.3. Indication of any immediate medical attention and special treatment needed

None known.

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide., Dry Chemical combined with peroxide may reignite fire., Light water additives may be particularly effective at extinguishing peroxide fires.

Unsuitable extinguishing media: High volume water jet.

5.2. Special hazards arising from the substance or mixture

The heat of decomposition of the peroxides adds to the heat of the fire. Dry chemical fire extinguishing agent may catalyze the decomposition.

5.3. Advice for firefighters

If dry chemical is used to extinguish a peroxide fire, the extinguished area must be thoroughly wetted down with water to prevent reignition.
As in any fire, wear self-contained positive-pressure breathing apparatus and full protective gear.

Containers near the source of fire should be cooled with a water spray to prevent contents from reaching decomposition temperature.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Wear a self-contained breathing apparatus and appropriate personal protective equipment. (See Section 8 - Exposure Controls/Personal Protection.) Remove all sources of ignition. Ventilate the area.

6.2. Environmental precautions

Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

6.3. Methods and material for containment and cleaning up

Dike spill to prevent runoff from entering drains, sewers, streams, etc. Wet spilled material with water and absorb with an inert absorbent material such as perlite, vermiculite, or sand. Sweep up using non-sparking tools and place in a clean polyethylene drum or a polyethylene pail. DO NOT place into a steel container, lined or unlined, as decomposition may occur. Treat any contaminated cardboard packaging as hazardous waste. Wet container with additional water prior to sealing. Use absorbent/absorbent material to solidify liquids. Clean up promptly by sweeping or vacuum. Wear protective equipment, including eye protection, to avoid exposure (see Section 8 for specific handling precautions).

7. Handling and storage

7.1. Precautions for safe handling

Rotate stock using the oldest material first. Avoid contact with skin, eyes and clothing. Use PPE as specified in section 8. Keep containers closed to prevent contamination. Keep away from sources of heat, sparks, or flame. Do not add to hot solvents or monomers as a violent decomposition and/or reaction may result. When using spray equipment, never spray raw peroxide onto curing or into raw resin or flues. Keep peroxide in its original container. DO NOT USE NEAR FOOD OR DRINK. Wash thoroughly after handling. Protect from contamination. Keep tightly sealed in original packing. Risk of decomposition. Wash thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage

The stability of peroxide formulations us directly related to the shipping and storage temperature history. Cool storage at 80° F (27°C) or below is recommended for longer shelf life and stability. Prolonged storage at elevated temperatures of 100° F (38°C) and higher will cause product degradation, gassing and potential container rupture which can result in a fire and/or explosion. Store out of direct sunlight in a well ventilated area away from combustible and incompatible material. DO NOT STORE WITH FOOD OR DRINK.

Refer to NFPA 400 Hazardous Materials Code from the National Fire Protection Association for additional storage information.

Further information

Store apart from other dangerous and incompatible substances.
STORE BELOW 38 °C (100 °F).
Keep away from direct sunlight.
Keep containers tightly closed in a cool, well-ventilated place.

8. Exposure controls/personal protection

8.1. Control parameters

• **Methyl ethyl ketone peroxide**		
CAS-No.	1338-23-4	
Control parameters	0.2 ppm	Ceiling Limit Value:(ACGIH)
Control parameters	0.2 ppm 1.5 mg/m3	Ceiling Limit Value:(US CA OEL)
• **Cumene hydroperoxide**		
CAS-No.	80-15-9	
Control parameters	1 ppm 6 mg/m3	Time Weighted Average (TWA):(WEEL)
Control parameters	Can be absorbed through the skin.	Skin designation:(WEEL)

• Dimethyl phthalate		
CAS-No.	131-11-3	
Control parameters	5 mg/m3	Time Weighted Average (TWA):(ACGIH)
Control parameters	5 mg/m3	Permissible exposure limit:(OSHA Z1)
Control parameters	5 mg/m3	Time Weighted Average (TWA) Permissible Exposure Limit (PEL):(US CA OEL)
• Acetophenone		
CAS-No.	98-86-2	
Control parameters	10 ppm	Time Weighted Average (TWA):(ACGIH)
Control parameters	10 ppm 50 mg/m3	Time Weighted Average (TWA):(WEEL)
Control parameters	10 ppm 49 mg/m3	Time Weighted Average (TWA) Permissible Exposure Limit (PEL):(US CA OEL)
Control parameters	Listed.	(US CA OEL)
• Methyl ethyl ketone		
CAS-No.	78-93-3	
Control parameters	200 ppm	Time Weighted Average (TWA):(ACGIH)
Control parameters	300 ppm	Short Term Exposure Limit (STEL):(ACGIH)
Control parameters	200 ppm 590 mg/m3	Permissible exposure limit:(OSHA Z1)
Control parameters	200 ppm 590 mg/m3	Time Weighted Average (TWA) Permissible Exposure Limit (PEL):(US CA OEL)
Control parameters	300 ppm 885 mg/m3	Short Term Exposure Limit (STEL):(US CA OEL)
• Hydrogen peroxide		
CAS-No.	7722-84-1	
Control parameters	1 ppm	Time Weighted Average (TWA):(ACGIH)
Control parameters	1 ppm 1.4 mg/m3	Permissible exposure limit:(OSHA Z1)
Control parameters	1 ppm 1.4 mg/m3	Time Weighted Average (TWA) Permissible Exposure Limit (PEL):(US CA OEL)

8.2. Exposure controls

Engineering measures

Local exhaust and mechanical ventilation recommended.

8.3. Personal protective equipment

Respiratory protection

A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.

Hand protection

Wear protective gloves made of the following materials:.
Solvent-resistant gloves (butyl-rubber)
Nitrile rubber
Neoprene gloves
Skin should be washed after contact.

Eye protection
Use chemical splash goggles or face shield.

Skin and body protection
A safety shower and eye wash fountain should be readily available.
To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

Hygiene measures
Do not eat, drink or smoke during use.
Wash hands before breaks and immediately after handling the product.

Protective measures
Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

physical state	liquid	
Colour	red	
Form	liquid	
Odour	slight	
Odour Threshold	No data available	
pH	Not applicable	
Melting point/range	No data available	
Boiling point/boiling range	not determined	
Flash point	> 65 °C	(Seta closed cup)
Evaporation rate	not determined	
Flammability (solid, gas)	Not applicable	
Lower explosion limit	No data available	
Upper explosion limit	No data available	
Vapour pressure	No data available	
Relative vapour density	> 1	
Relative density	1.0	
Water solubility	soluble	
Solubility/qualitative	No data available	
Partition coefficient: n-octanol/water	No data available	
Auto-ignition temperature	No data available	

Thermal decomposition	> 60 °C Method: SADT (UN test H.4) Rapid, exothermic reaction may occur above the Self Accelerated Decomposition Temperature (SADT). SADT-Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-acclerating decomposition reaction. This reaction will generate flammable vapors which may autoignite.
Viscosity, dynamic	No data available
Viscosity, kinematic	not determined

9.2. Other information

Peroxides	The substance or mixture is an organic peroxide classified as type D.

10. Stability and reactivity

10.1. Reactivity

Stable under recommended storage conditions.

10.2. Chemical stability

Contact with incompatible substances can cause disintegration at or below SADT.

10.3. Possibility of hazardous reactions

Stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Vapors may form explosive mixtures with air.

10.4. Conditions to avoid

Keep away from heat and sources of ignition.
Exposure to sunlight.
Prolonged storage above 100°F (38°). Storage above SADT. Storage near flammable or combustible material.

10.5. Incompatible materials

Keep away from strong acids, bases, heavy metals, salts, reducing agents and accelerators. Contaminants (e.g. rust, dust, ash). Combustible materials., Risk of decomposition. Dimethylaniline, cobalt napthenate and other promoters, accelerators, reducing agents, or any hot material.

10.6. Hazardous decomposition products

Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke)., Irritant, caustic, flammable, noxious/toxic gases and vapors can develop in the case of fire and decomposition., Acrid smoke and irritating fumes.

11. Toxicological information

11.1. Information on toxicological effects

No toxicological studies are available on the mixture.

carcinogenicity assessment	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. 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.
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.

Toxicological information on components
Methyl ethyl ketone peroxide

Acute oral toxicity	LD50 Oral Rat(male): 1017 mg/kg
Skin irritation	/ Causes severe skin burns and eye damage. Causes burns.
Eye irritation	/ Causes serious eye damage. Risk of serious damage to eyes.

Cumene hydroperoxide

Acute oral toxicity	LD50 Oral Rat: 382 mg/kg
Acute inhalation toxicity	Assessment: Toxic if inhaled. Toxic by inhalation.
Acute dermal toxicity	LD50 Rat: > 1200 - 1520 mg/kg Assessment: Harmful in contact with skin.
Skin irritation	Rabbit Corrosive
Assessment of STOT repeat exposure	Exposure routes: inhalation (vapour) Assessment: May cause damage to organs through prolonged or repeated exposure.
Mutagenicity assessment	Not mutagenic in Ames Test.

Acetophenone

Acute oral toxicity	LD50 Oral Mouse: 740 mg/kg Rat(male/female): 3200 mg/kg
Acute inhalation toxicity	LC50 Rat: > 210 ppm / 8 h Breathing problems may result on inhalation of the vapours in greater concentrations. 400mg/m3 leads to excessive smoke development after 60 min.. Vapours may cause narcotic effects.
Acute dermal toxicity	LD50 Guinea pig: ca. > 20600 mg/kg LD50 Rat(male/female): 3300 mg/kg
Acute toxicity (other routes of administration)	LDL0 Mouse: 330 mg/kg
Skin irritation	No skin irritation
Eye irritation	Irritating to eyes.

Repeated dose toxicity	Rat	
	NOEL:	750 mg/kg
	NOAEL:	225 mg/kg
	LOAEL:	750 mg/kg

Phlegmatizer

Acute oral toxicity	LD50 Oral Rat(female): > 2000 mg/kg
Acute inhalation toxicity	LCLo Rat: > 0.12 mg/l / 6 h
Acute dermal toxicity	LD50 Dermal Rat(male/female): > 2000 mg/kg
Skin irritation	No skin irritation
Eye irritation	No eye irritation

Cumene

Acute oral toxicity	LD50 Oral Rat: 2700 mg/kg
Acute inhalation toxicity	Rat: 8000 ppm / 4 h
	Mouse: 10 mg/l / 7 h
Acute dermal toxicity	LD50 Dermal Rabbit: > 3160 mg/kg
Skin irritation	No skin irritation
Eye irritation	No eye irritation
Sensitisation	Not sensitizing.
Assessment of STOT single exposure	Exposure routes: inhalation (vapour) Target Organs: Upper respiratory tract Assessment: May cause respiratory irritation.
Risk of aspiration toxicity	Aspiration toxicity May be fatal if swallowed and enters airways.
carcinogenicity assessment	Contains a component which is classified as an IARC 2B carcinogen (possibly carcinogenic to humans).

Methyl ethyl ketone

Acute oral toxicity	LD50 Oral Rat: 2737 mg/kg
Acute inhalation toxicity	LC50 Rat: 23500 mg/l / 8 h
Acute dermal toxicity	LD50 Rabbit: 6480 mg/kg
Eye irritation	/ Irritating to eyes.

irritating

Assessment of STOT single exposure	Target Organs:	Central nervous system
	Assessment:	May cause drowsiness or dizziness.
Mutagenicity assessment		This product may cause mutagenic effects.

Hydrogen peroxide

Acute oral toxicity		LD50 Oral Rat(male): 1026 mg/kg
	Test substance:	Hydrogen peroxide >= 50%
		LD50 Oral Rat(female): 693.7 mg/kg
	Test substance:	Hydrogen peroxide >= 50%
Acute inhalation toxicity	Assessment:	Harmful if inhaled.
Acute dermal toxicity		LD50 Dermal Rat(male and female): > 2000 mg/kg
Skin irritation		Corrosive
Eye irritation		Corrosive
Sensitisation		Not sensitizing.
Assessment of STOT single exposure	Assessment:	May cause respiratory irritation.

N-methyl-2-pyrrolidone

Acute oral toxicity		LD50 Oral rat(male/female): 4150 mg/kg
	Method:	analogy OECD TG 401
Acute inhalation toxicity		LC50 rat(male/female): > 5.1 mg/l / 4 h / Aerosol
	Method:	OECD Test Guideline 403
		(limit test)
Acute dermal toxicity		LD50 Dermal Rat(male/female): > 5000 mg/kg
	Method:	Analogy OECD-method
Skin irritation		Rabbit
		Irritating to skin.
	Method:	Draize Test
Eye irritation		Rabbit
		Irritating to eyes.
	Method:	Draize Test
Sensitisation		species not listed: not sensitizing to the skin
Assessment of STOT single exposure	Assessment:	May cause respiratory irritation.

CMR assessment

Teratogenicity	Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

12. Ecological information

12.1. Toxicity

Toxicity to fish	There is no data available for this product.
Toxicity in aquatic invertebrates	No data is available on the product itself.
Toxicity to algae	No data is available on the product itself.

12.2. Persistence and degradability

Biodegradability	No data available

12.3. Bioaccumulative potential

Bioaccumulation	No data available

12.4. Mobility in soil

Mobility	No data available

12.5. Other adverse effects

Further Information	Avoid release to the environment.

13. Disposal considerations

13.1. Waste treatment methods

Product

Waste must be disposed of in accordance with federal, state and local regulations. Incineration is the preferred method of disposal. Contact United Initiators for additional information. Empty containers must be handled with care due to product residue. DO NOT HEAT OR CUT THE EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH.

Uncleaned packaging
Packaging material should be recycled or disposed of in accordance with federal, state and local regulations.

14. Transport information

D.O.T. Road/Rail

14.1.	UN number:	UN 3105
14.2.	UN proper shipping name:	Organic peroxide type D, liquid(Methyl ethyl ketone peroxide, <= 17%, Cumyl hydroperoxide, <= 44%)
14.3.	Transport hazard class(es):	5.2
14.4.	Packing group:	II
14.5.	Environmental hazards (Marine pollutant):	--
14.6.	Special precautions for user:	No

Air transport ICAO-TI/IATA-DGR

14.1. UN number: UN 3105
14.2. UN proper shipping name: Organic peroxide type D, liquid(Methyl ethyl ketone peroxide, <= 17%, Cumyl hydroperoxide, <= 44%)
14.3. Transport hazard class(es): 5.2
14.4. Packing group: --
14.5. Environmental hazards: --
14.6. Special precautions for user: Yes

IATA-C: ERG-Code 5L
Must be protected from direct sunlight and stored away from all sources of heat in a well-ventilated area.

IATA-P: ERG-Code 5L
Must be protected from direct sunlight and stored away from all sources of heat in a well-ventilated area.

Sea transport IMDG-Code/GGVSee (Germany)

14.1. UN number: UN 3105
14.2. UN proper shipping name: ORGANIC PEROXIDE TYPE D, LIQUID(Methyl ethyl ketone peroxide, <= 17%, Cumyl hydroperoxide, <= 44%)
14.3. Transport hazard class(es): 5.2
14.4. Packing group: --
14.5. Environmental hazards (Marine pollutant): --
14.6. Special precautions for user: Yes
EmS: F-J,S-R
"Separated from" acids and alkalis.
Protected from sources of heat.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:
for transportapproval see regulatory information

15. Regulatory information

US Federal Regulations

OSHA

If listed below, chemical specific standards apply to the product or components:

- None listed

Clean Air Act Section (112)

If listed below, components present at or above the de minimus level are hazardous air pollutants:

- Dimethyl phthalate
  CAS-No. 131-11-3
- Acetophenone
  98-86-2

CERCLA Reportable Quantities

If listed below, a reportable quantity (RQ) applies to the product based on the percent of the named component:

- Cumene hydroperoxide
  CAS-No. 80-15-9

Reportable Quantity 23 lbs

SARA Title III Section 311/312 Hazard Categories

The product meets the criteria only for the listed hazard classes:

- Acute Health Hazard
- Chronic Health Hazard
- Fire Hazard

SARA Title III Section 313 Reportable Substances

If listed below, components are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

- Cumene hydroperoxide
  CAS-No. 80-15-9
- Dimethyl phthalate
  CAS-No. 131-11-3
- Cumene
  CAS-No. 98-82-8
- Acetophenone
  CAS-No. 98-86-2
- Methyl ethyl ketone
  CAS-No. 78-93-3
- N-methyl-2-pyrrolidone
  CAS-No. 872-50-4

Toxic Substances Control Act (TSCA)

If listed below, non-proprietary substances are subject to export notification under Section 12 (b) of TSCA:

- None listed

State Regulations

California Proposition 65

A warning under the California Drinking Water Act is required only if listed below:

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

- N-methyl-2-pyrrolidone
  CAS-No. 872-50-4

International Chemical Inventory Status

Unless otherwise noted, this product is in compliance with the inventory listing of the countries shown below. For information on listing for countries not shown, contact the Product Regulatory Services Department.

Europe (EINECS/ELINCS)	listed/registered
USA (TSCA)	listed/registered
Canada (DSL)	listed/registered
Australia (AICS)	listed/registered
Japan (MITI)	not listed/registered
Philippines (PICCS)	not listed/registered
China	not listed/registered
Korea	not listed/registered
New Zealand	not listed/registered

An employer using HMIS/NFPA labeling must through training ensure that its employees are fully aware of the hazards of the chemicals used.

HMIS Ratings

Health :	3*
Flammability :	2
Physical Hazard :	2

NFPA Ratings

Health :	3
Flammability :	2
Reactivity :	2

16. Other information

Further information

Revision date 03/12/2015

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Legend

ACC	American Chemistry Council
ACGIH	American Conference of Governmental Industrial Hygenists
ACS	Advisory Committee on Sustainability
ADI	Acceptable Daily Intake
ASTM	American Society for Testing and Materials
ATP	Adaptation to Technical Progress
BCF	Bioconcentration factor
BOD	Biochemical oxygen demand
c.c.	closed cup
CAO	Cargo Aircraft Only
Carc	Carcinogen
CAS	Chemical Abstract Services
CDN	Canada
CEPA	Canadian Environmental Protection Act
CERCLA	Comprehensive Environmental Response – Compensation and Liability Act
CFR	Code of Federal Regulations
CMR	carcinogenic-mutagenic-toxic for reproduction
COD	Chemical oxygen demand
DIN	German Institute for Standardization
DMEL	Derived minimum effect level
DNEL	Derived no effect level
DOT	Department of Transportation
EC50	half maximal effective concentration
EPA	Environmental Protection Agency
ErC50	Reduction of Growth Rate
ERG	Emergency Response Guide Book
FDA	Food and Drug Administration
GHS	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
GLP	Good Laboratory Practice
GMO	Genetic Modified Organism
HCS	Hazard Communication Standard
HMIS	Hazardous Materials Identification System
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
ICAO-TI	International Civil Aviation Organization- Technical Instructions
ICCA	International Council of Chemical Association
ID	Identification number
IMDG	International Maritime Dangerous Goods
IUPAC	International Union of Pure and Applied Chemistry
ISO	International Organization For Standardization
LC50	50 % Lethal Concentration
LD50	50 % Lethal Dose
L(E)C50	LC50 or EC50
LOAEL	Lowest observed adverse effect level
LOEL	Lowest observed effect level
MARPOL	International Convention for the Prevention of Pollution from Ships
NFPA	National Fire Protection Association
NOAEL	No observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
o. c.	open cup
OECD	Organisation for Economic Cooperation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PBT	Persistent, bioaccumulative, toxic
PEC	Predicted effect concentration
PNEC	Predicted no effect concentration
RQ	Reportable Quantity

SDS	Safety Data Sheet
STOT	Specific Target Organ Toxicity
UN	United Nations
vPvB	very persistent, very bioaccumulative
voc	volatile organic compounds
WHMIS	Workplace Hazardous Materials Information System
WHO	World Health Organization