

# SAFETY DATA SHEET

## NOROX MCP FRED



Version  
1.0

Revision Date:  
10/22/2018

SDS Number:  
600000000711

Print Date:  
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### SECTION 1. IDENTIFICATION

Product name : NOROX MCP FRED

#### Manufacturer or supplier's details

Company name of supplier : United Initiators, Inc.

Address : 555 Garden Street  
Elyria OH 44035

Telephone : +1-440-323-3112

Telefax : +1-440-323-2659

Emergency telephone : CHEMTREC US (24h): +1-800-424-9300  
CHEMTREC WORLD (24h): +1-703-527-3887

E-mail address of person responsible for the SDS : cs-initiators.nafta@united-in.com

#### Recommended use of the chemical and restrictions on use

Recommended use : Hardener

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### SECTION 2. HAZARDS IDENTIFICATION

#### GHS classification in accordance with 29 CFR 1910.1200

Flammable liquids : Category 4

Organic peroxides : Type D

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 4

Skin corrosion : Category 1B

Serious eye damage : Category 1

Reproductive toxicity : Category 1B

Specific target organ systemic toxicity - repeated exposure : Category 2

Acute aquatic toxicity : Category 2

Chronic aquatic toxicity : Category 2

#### GHS label elements

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Hazard pictograms

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Signal Word

:

Danger

Hazard Statements

:

H227 Combustible liquid.  
H242 Heating may cause a fire.  
H302 + H332 Harmful if swallowed or if inhaled.  
H314 Causes severe skin burns and eye damage.  
H360 May damage fertility or the unborn child.  
H373 May cause damage to organs through prolonged or repeated exposure.  
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements

:

**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/ vapors/ 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.

**Response:**

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.  
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.  
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
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.

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### Storage:

P405 Store locked up.  
P410 Protect from sunlight.  
P411 + P235 Store at temperatures not exceeding < 38 °C/ < 100 °F. Keep cool.  
P420 Store away from other materials.

### Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

### Other hazards

None known.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture  
Chemical nature : Organic Peroxide  
Liquid mixture

### Hazardous ingredients

Chemical name	CAS-No.	Concentration (% w/w)
Cumene hydroperoxide	80-15-9	>= 40 - < 45
2-Butanone, peroxide	1338-23-4	>= 15 - < 20
Trimethylpentanediol isobutyrate	6846-50-0	>= 5 - < 7.5
Cumene	98-82-8	>= 1 - < 5
acetophenone	98-86-2	>= 1 - < 5
Butanone	78-93-3	>= 1 - < 5
Benzenemethanol, alpha,alpha-dimethyl-	617-94-7	>= 1 - < 5
Hydrogen peroxide	7722-84-1	>= 1 - < 5
N-Methyl-2-pyrrolidone	872-50-4	>= 0.1 - < 1

## SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.  
Show this material safety data sheet to the doctor in attendance.  
Do not leave the victim unattended.  
Symptoms of poisoning may appear several hours later.  
Call a physician immediately.

If inhaled : Call a physician or poison control center immediately.  
If unconscious, place in recovery position and seek medical advice.  
Keep respiratory tract clear.  
Call a physician immediately.  
If breathed in, move person into fresh air.

In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.  
Wash contaminated clothing before re-use.

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- If on skin, rinse well with water.  
If on clothes, remove clothes.  
If symptoms persist, call a physician.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.  
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
Continue rinsing eyes during transport to hospital.  
Remove contact lenses.  
Protect unharmed eye.  
Keep eye wide open while rinsing.  
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.  
Do NOT induce vomiting.  
Call a physician immediately.  
Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : Harmful if swallowed or if inhaled.  
Causes serious eye damage.  
May damage fertility or the unborn child.  
May cause damage to organs through prolonged or repeated exposure.  
Causes severe burns.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
- Notes to physician : Treat symptomatically and supportively.
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### SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire fighting : Contact with incompatible materials or exposure to temperatures exceeding SADT may result in a self-accelerating decomposition reaction with release of flammable vapors which may auto-ignite.
- The product burns violently.  
Flash back possible over considerable distance.  
Vapors may form explosive mixtures with air.  
Cool closed containers exposed to fire with water spray.
- Specific extinguishing methods : Do not use a solid water stream as it may scatter and spread fire.  
Remove undamaged containers from fire area if it is safe to do

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- so.  
Use water spray to cool unopened containers.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.  
Use personal protective equipment.
- 

### SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.  
Remove all sources of ignition.  
Follow safe handling advice and personal protective equipment recommendations.  
Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.  
Never return spills in original containers for re-use.  
Treat recovered material as described in the section "Disposal considerations".
- Environmental precautions : Prevent product from entering drains.  
Prevent further leakage or spillage if safe to do so.  
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Contact with incompatible substances can cause decomposition at or below SADT.  
Clear spills immediately.  
Suppress (knock down) gases/vapors/mists with a water spray jet.  
To clean the floor and all objects contaminated by this material, use plenty of water.  
Soak up with inert absorbent material.  
Isolate waste and do not reuse.  
Non-sparking tools should be used.  
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
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### SECTION 7. HANDLING AND STORAGE

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Advice on protection against : Keep away from heat and sources of ignition. Use only
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- fire and explosion : explosion-proof equipment. Keep away from combustible material.
- Advice on safe handling : Do not swallow.  
Do not breathe vapors/dust.  
Avoid exposure - obtain special instructions before use.  
Avoid contact with skin and eyes.  
Avoid formation of aerosol.  
Take precautionary measures against static discharges.  
Never return any product to the container from which it was originally removed.  
Provide sufficient air exchange and/or exhaust in work rooms.  
Avoid confinement.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Smoking, eating and drinking should be prohibited in the application area.  
Wash thoroughly after handling.  
For personal protection see section 8.  
Protect from contamination.
- Conditions for safe storage : Avoid impurities (e.g. rust, dust, ash), risk of decomposition.  
Electrical installations / working materials must comply with the technological safety standards.  
Containers which are opened must be carefully resealed and kept upright to prevent leakage.  
Store in original container.  
Keep containers tightly closed in a cool, well-ventilated place.  
Store in accordance with the particular national regulations.
- Materials to avoid : Keep away from strong acids, bases, heavy metal salts and other reducing substances.
- Recommended storage temperature : < 38 °C  
< 100 °F

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Cumene hydroperoxide	80-15-9	TWA	1 ppm	US WEEL
dimethyl phthalate	131-11-3	TWA	5 mg/m <sup>3</sup>	ACGIH
		TWA	5 mg/m <sup>3</sup>	NIOSH REL
		TWA	5 mg/m <sup>3</sup>	OSHA Z-1
		TWA	5 mg/m <sup>3</sup>	OSHA P0
2-Butanone, peroxide	1338-23-4	C	0.2 ppm	ACGIH
		C	0.2 ppm 1.5 mg/m <sup>3</sup>	NIOSH REL
		C	0.7 ppm	OSHA P0

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			5 mg/m3	
Cumene	98-82-8	TWA	50 ppm	ACGIH
		TWA	50 ppm 245 mg/m3	NIOSH REL
		TWA	50 ppm 245 mg/m3	OSHA Z-1
		TWA	50 ppm 245 mg/m3	OSHA P0
acetophenone	98-86-2	TWA	10 ppm	ACGIH
		TWA	10 ppm	US WEEL
Butanone	78-93-3	TWA	200 ppm	ACGIH
		STEL	300 ppm	ACGIH
		TWA	200 ppm 590 mg/m3	NIOSH REL
		ST	300 ppm 885 mg/m3	NIOSH REL
		TWA	200 ppm 590 mg/m3	OSHA Z-1
		TWA	200 ppm 590 mg/m3	OSHA P0
		STEL	300 ppm 885 mg/m3	OSHA P0
Hydrogen peroxide	7722-84-1	TWA	1 ppm	ACGIH
		TWA	1 ppm 1.4 mg/m3	NIOSH REL
		TWA	1 ppm 1.4 mg/m3	OSHA Z-1
		TWA	1 ppm 1.4 mg/m3	OSHA P0
N-Methyl-2-pyrrolidone	872-50-4	TWA	10 ppm	US WEEL

### Hazardous components without workplace control parameters

Ingredients	CAS-No.
Trimethylpentanediol isobutyrate	6846-50-0
Benzenemethanol, alpha,alpha-dimethyl-	617-94-7

### Biological occupational exposure limits

Ingredients	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Butanone	78-93-3	methyl ethyl ketone	Urine	End of shift (As soon as possible after exposure ceases)	2 mg/l	ACGIH BEI
N-Methyl-2-pyrrolidone	872-50-4	5-Hydroxy-N-methyl-2-pyrrolidone	Urine	End of shift (As soon as possible after	100 mg/l	ACGIH BEI

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				exposure ceases)		
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**Engineering measures** : Minimize workplace exposure concentrations.

### Personal protective equipment

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

Filter type : ABEK-filter

Hand protection

Material : butyl-rubber

Break through time : >= 480 min

Glove thickness : 0.5 mm

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work.  
For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove Wash hands before breaks and at the end of workday.

Eye protection : Tightly fitting safety goggles  
Please wear suitable protective goggles. Also wear face protection if there is a splash hazard.  
Ensure that eyewash stations and safety showers are close to the workstation location.

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.

Hygiene measures : Keep away from food and drink.  
When using do not eat or drink.  
When using do not smoke.  
Wash hands before breaks and immediately after handling the product.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Color : red

Odor : slight

pH : Not applicable

Melting point/range : No data available



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Boiling point/boiling range	:	not determined
Flash point	:	> 65 °C Method: closed cup
Flammability (solid, gas)	:	Not applicable
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	> 1
Density	:	1.0 g/cm <sup>3</sup>
Solubility(ies) Water solubility	:	soluble
Partition coefficient: n- octanol/water	:	No data available
Self-Accelerating decomposi- tion temperature (SADT)	:	60 °C SADT-Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction.
Viscosity Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	not determined
Oxidizing properties	:	The substance or mixture is not classified as oxidizing. Organic peroxide

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### SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable under recommended storage conditions.
Chemical stability	:	Stable under recommended storage conditions.
Possibility of hazardous reac- tions	:	Vapors may form explosive mixture with air.
Conditions to avoid	:	Protect from contamination. Contact with incompatible substances can cause decomposition at or below SADT. Heat, flames and sparks. Avoid confinement.
Incompatible materials	:	Accelerators, strong acids and bases, heavy metals and

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heavy metal salts, reducing agents

Hazardous decomposition products : Irritant, caustic, flammable, noxious/toxic gases and vapours can develop in the case of fire and decomposition

### SECTION 11. TOXICOLOGICAL INFORMATION

#### Acute toxicity

Harmful if swallowed or if inhaled.

#### Product:

Acute oral toxicity : Acute toxicity estimate: 637.49 mg/kg  
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 1 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: 2,031 mg/kg  
Method: Calculation method

#### Ingredients:

##### **Cumene hydroperoxide:**

Acute oral toxicity : LD50 Oral (Rat): 382 mg/kg

Acute inhalation toxicity : 0.51 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Expert judgment  
Assessment: The component/mixture is toxic after short term inhalation.

Acute dermal toxicity : Acute toxicity estimate: 1,100 mg/kg  
Method: Expert judgment

##### **2-Butanone, peroxide:**

Acute oral toxicity : Acute toxicity estimate: 500 mg/kg  
Method: Expert judgment

Acute inhalation toxicity : Acute toxicity estimate: 1.5 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Expert judgment  
Assessment: The component/mixture is moderately toxic after short term inhalation.  
Remarks: Based on data from similar materials

Acute dermal toxicity : Acute toxicity estimate: 2,500 mg/kg  
Method: Expert judgment

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### **Trimethylpentanediol isobutyrate:**

- Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: Expert judgment  
Assessment: The substance or mixture has no acute oral toxicity
- Acute inhalation toxicity : LCLo (Rat): > 0.12 mg/l  
Exposure time: 6 h  
Test atmosphere: dust/mist  
Method: Expert judgment  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: No mortality observed at this dose.
- Acute dermal toxicity : LD50 (Guinea pig): > 2,000 mg/kg  
Method: Expert judgment  
Assessment: The substance or mixture has no acute dermal toxicity

### **Cumene:**

- Acute oral toxicity : LD50 (Rat): 2,700 mg/kg  
Method: OECD Test Guideline 401
- Acute dermal toxicity : LD50 (Rabbit): > 3,160 mg/kg

### **acetophenone:**

- Acute oral toxicity : Acute toxicity estimate: 500 mg/kg  
Method: Expert judgment  
Assessment: The component/mixture is moderately toxic after single ingestion.  
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI
- Acute dermal toxicity : LD50 (Rat): 3,300 mg/kg  
Method: OECD Test Guideline 402

### **Butanone:**

- Acute oral toxicity : LD50 (Rat): 2,193 mg/kg  
Method: OECD Test Guideline 423
- Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg  
Method: OECD Test Guideline 402

### **Benzenemethanol, alpha,alpha-dimethyl-:**

- Acute oral toxicity : LD50 (Rat): 1,300 mg/kg
- Acute dermal toxicity : LD50 (Rabbit): 4,300 mg/kg

### **Hydrogen peroxide:**

- Acute oral toxicity : LD50 (Rat, male): 1,026 mg/kg  
Method: OECD Test Guideline 401

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Acute inhalation toxicity : LC50 (Rat): > 0.17 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The component/mixture is moderately toxic after short term inhalation.  
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Acute dermal toxicity : LD50 (Rabbit): > 6,500 mg/kg

### **N-Methyl-2-pyrrolidone:**

Acute oral toxicity : LD50 (Rat): 4,150 mg/kg  
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 5.1 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rat): > 5,000 mg/kg  
Method: OECD Test Guideline 402

### **Skin corrosion/irritation**

Causes severe burns.

#### **Product:**

Remarks: Extremely corrosive and destructive to tissue.

#### **Ingredients:**

##### **Cumene hydroperoxide:**

Species: Rabbit  
Result: Causes burns.

##### **2-Butanone, peroxide:**

Species: Rabbit  
Result: Causes burns.

##### **Trimethylpentanediol isobutyrate:**

Species: Guinea pig  
Exposure time: 24 h  
Result: No skin irritation  
Remarks: Based on available data, the classification criteria are not met.

##### **Cumene:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation

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### **acetophenone:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation

### **Butanone:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation

### **Benzenemethanol, alpha,alpha-dimethyl-:**

Species: Rabbit  
Result: Severe skin irritation

### **Hydrogen peroxide:**

Result: Corrosive after 3 minutes or less of exposure

### **N-Methyl-2-pyrrolidone:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: Irritating to skin.

### **Serious eye damage/eye irritation**

Causes serious eye damage.

### **Product:**

Remarks: May cause irreversible eye damage.

### **Ingredients:**

#### **Cumene hydroperoxide:**

Species: Rabbit  
Result: Corrosive

#### **2-Butanone, peroxide:**

Result: Irreversible effects on the eye

#### **Trimethylpentanediol isobutyrate:**

Species: Rabbit  
Result: No eye irritation

#### **Cumene:**

Species: Rabbit  
Result: No eye irritation  
Method: OECD Test Guideline 405

#### **acetophenone:**

Species: Rabbit

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Result: Eye irritation  
Method: No information available.  
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

### **Butanone:**

Species: Rabbit  
Result: Eye irritation  
Method: OECD Test Guideline 405

### **Benzenemethanol, alpha,alpha-dimethyl-:**

Result: Irritating to eyes.

### **Hydrogen peroxide:**

Result: Irreversible effects on the eye

### **N-Methyl-2-pyrrolidone:**

Species: Rabbit  
Result: Eye irritation  
Method: OECD Test Guideline 405

### **Respiratory or skin sensitization**

#### **Skin sensitization**

Not classified based on available information.

#### **Respiratory sensitization**

Not classified based on available information.

### **Ingredients:**

#### **Cumene hydroperoxide:**

Result: Does not cause skin sensitization.

#### **2-Butanone, peroxide:**

Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: Does not cause skin sensitization.

Assessment: Harmful if swallowed., Harmful if inhaled.

#### **Trimethylpentanediol isobutyrate:**

Species: Guinea pig  
Result: Does not cause skin sensitization.

#### **Cumene:**

Routes of exposure: Skin contact  
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: Does not cause skin sensitization.

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### **acetophenone:**

Test Type: Draize Test  
Routes of exposure: Skin contact  
Species: Guinea pig  
Result: Does not cause skin sensitization.

### **Butanone:**

Routes of exposure: Skin contact  
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: Does not cause skin sensitization.

### **N-Methyl-2-pyrrolidone:**

Species: Mouse  
Method: OECD Test Guideline 429  
Result: Does not cause skin sensitization.  
Remarks: Based on data from similar materials

### **Germ cell mutagenicity**

Not classified based on available information.

### **Ingredients:**

#### **Cumene hydroperoxide:**

Genotoxicity in vitro : Result: positive  
Remarks: In vitro tests have shown mutagenic effects.

Genotoxicity in vivo : Test Type: Micronucleus test  
Species: Mouse  
Application Route: Skin contact  
Result: negative

#### **2-Butanone, peroxide:**

Genotoxicity in vitro : Method: OECD Test Guideline 473  
Result: negative  
: Method: OECD Test Guideline 471  
Result: negative  
: Method: OECD Test Guideline 476  
Result: negative

#### **Trimethylpentanediol isobutyrate:**

Genotoxicity in vitro : Method: OECD Test Guideline 476  
Result: negative  
: Test Type: Ames test  
Result: negative  
: Method: OECD Test Guideline 473  
Result: negative

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### **Cumene:**

Genotoxicity in vitro : Method: OECD Test Guideline 473  
Result: negative

: Method: OECD Test Guideline 471  
Result: negative

: Method: OECD Test Guideline 476  
Result: negative

: Method: OECD Test Guideline 482  
Result: negative

: Test Type: Ames test  
Result: positive

Genotoxicity in vivo : Species: Rat  
Application Route: Intraperitoneal  
Exposure time: 72 h  
Method: OECD Test Guideline 474  
Result: Equivocal

Species: Mouse  
Application Route: inhalation (gas)  
Exposure time: 14 w  
Method: OECD Test Guideline 474  
Result: negative

### **acetophenone:**

Genotoxicity in vitro : Method: OECD Test Guideline 473  
Result: negative

: Method: OECD Test Guideline 476  
Result: negative

: Method: OECD Test Guideline 471  
Result: negative

Genotoxicity in vivo : Species: Mouse  
Application Route: Intraperitoneal  
Method: OECD Test Guideline 474  
Result: negative

### **Butanone:**

Genotoxicity in vitro : Method: OECD Test Guideline 471  
Result: negative

: Method: OECD Test Guideline 476  
Result: negative

: Method: OECD Test Guideline 473  
Result: negative



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Genotoxicity in vivo : Species: Mouse  
Application Route: Intraperitoneal  
Method: OECD Test Guideline 474  
Result: negative

### Hydrogen peroxide:

Genotoxicity in vitro : Test Type: Ames test  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo  
cytogenetic assay)  
Species: Mouse  
Result: negative

### Carcinogenicity

Not classified based on available information.

### Ingredients:

#### Cumene hydroperoxide:

Remarks: This information is not available.

#### 2-Butanone, peroxide:

Remarks: This information is not available.

#### Cumene:

Species: Rat  
Application Route: inhalation (gas)  
Exposure time: 2 Years  
LOEC: 250  
Method: OECD Test Guideline 451  
Result: negative

Species: Mouse  
Application Route: inhalation (gas)  
Exposure time: 2 Years  
LOEC: 125  
Method: OECD Test Guideline 451  
Result: negative

Carcinogenicity - Assessment : Carcinogenicity classification not possible from current data.

#### IARC

Group 2B: Possibly carcinogenic to humans

Cumene 98-82-8

#### OSHA

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

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**NTP** Reasonably anticipated to be a human carcinogen  
Cumene 98-82-8

### Reproductive toxicity

May damage fertility or the unborn child.

### Ingredients:

#### Cumene hydroperoxide:

Effects on fertility : Remarks: No data available

Effects on fetal development : Remarks: No data available

#### 2-Butanone, peroxide:

Effects on fertility : Species: Rat  
Application Route: oral (gavage)  
General Toxicity Parent: NOAEL: 50 mg/kg body weight  
Method: OECD Test Guideline 421  
Result: negative

#### Trimethylpentanediol isobutyrate:

Effects on fetal development : Species: Rabbit  
Application Route: Oral  
300 mg/kg

Reproductive toxicity - Assessment : Suspected of damaging the unborn child., Some evidence of adverse effects on development, based on animal experiments.

#### Cumene:

Effects on fetal development : Species: Rabbit  
Application Route: inhalation (vapor)  
General Toxicity Maternal: LOAEL: 500  
Developmental Toxicity: NOAEL: 2,300  
Method: OECD Test Guideline 414  
  
Species: Rat  
Application Route: inhalation (vapor)  
General Toxicity Maternal: NOAEL: 100  
Developmental Toxicity: NOAEL: > 1,200  
Method: OECD Test Guideline 414

#### acetophenone:

Effects on fertility : Species: Rat  
Application Route: Ingestion  
General Toxicity Parent: NOAEL: 225 mg/kg body weight  
General Toxicity F1: NOAEL: 225 mg/kg body weight  
Method: OECD Test Guideline 422  
Result: negative

Species: Rat

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Application Route: Ingestion  
General Toxicity Parent: LOAEL: 750 mg/kg body weight  
General Toxicity F1: LOAEL: 750 mg/kg body weight  
Method: OECD Test Guideline 422

Effects on fetal development : Species: Mouse  
Application Route: Ingestion  
General Toxicity Maternal: NOAEL:  $\geq$  175 mg/kg body weight  
Teratogenicity: NOAEL:  $\geq$  175 mg/kg body weight  
Developmental Toxicity: NOAEL:  $\geq$  175 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: negative

### Butanone:

Effects on fertility : Species: Rat  
Application Route: oral (drinking water)  
General Toxicity Parent: NOAEL: 10,000 mg/l  
General Toxicity F1: NOAEL: 10,000 mg/l  
Method: OECD Test Guideline 416  
Remarks: Based on data from similar materials

Species: Rat  
Application Route: oral (drinking water)  
General Toxicity Parent: LOAEL: 20,000 mg/l  
Method: OECD Test Guideline 416  
Remarks: Based on data from similar materials

Effects on fetal development : Species: Rat  
Application Route: Inhalation  
General Toxicity Maternal: NOAEC: ca. 1,002 mg/kg body weight  
Teratogenicity: NOAEC Parent: ca. 1,002 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: negative

### N-Methyl-2-pyrrolidone:

Reproductive toxicity - Assessment : Clear evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments

### STOT-single exposure

Not classified based on available information.

### Ingredients:

#### Cumene:

Assessment: May cause respiratory irritation.

#### Butanone:

Assessment: May cause drowsiness or dizziness.

#### Hydrogen peroxide:

Assessment: May cause respiratory irritation.

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### **N-Methyl-2-pyrrolidone:**

Assessment: May cause respiratory irritation.

### **STOT-repeated exposure**

May cause damage to organs through prolonged or repeated exposure.

### **Ingredients:**

#### **Cumene hydroperoxide:**

Assessment: May cause damage to organs through prolonged or repeated exposure.

### **Repeated dose toxicity**

### **Ingredients:**

#### **Cumene hydroperoxide:**

Species: Rat  
NOAEL: 0.031 mg/l  
Application Route: inhalation (dust/mist/fume)  
Exposure time: 90 d

#### **2-Butanone, peroxide:**

Species: Rat  
NOAEL: 200 mg/kg  
Application Route: oral (gavage)  
Exposure time: 28 d  
Method: OECD Test Guideline 407

Repeated dose toxicity - : Harmful if swallowed., Harmful if inhaled.  
Assessment

#### **Cumene:**

Species: Rat  
NOAEL: > 536 mg/kg  
Application Route: oral (feed)

Species: Rat  
NOAEL: 125 mg/kg  
Application Route: inhalation (vapor)  
Method: OECD Test Guideline 413

#### **acetophenone:**

Species: Rat  
NOAEL: 225 mg/kg  
LOAEL: 750 mg/kg  
Application Route: Ingestion  
Method: OECD Test Guideline 422

#### **Hydrogen peroxide:**

Species: Mouse

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Application Route: Ingestion  
Exposure time: 90 d  
Symptoms: No adverse effects.

### **N-Methyl-2-pyrrolidone:**

Species: Rat  
NOAEL: 0.5 mg/l  
LOAEL: 1 mg/l  
Application Route: inhalation (vapor)  
Exposure time: 90 d  
Method: OECD Test Guideline 413

Species: Rat  
NOAEL: 3,000 mg/kg  
LOAEL: 7,500 mg/kg  
Application Route: Ingestion  
Exposure time: 90 d  
Method: OECD Test Guideline 408

Species: Rat  
NOAEL: 6,000 mg/kg  
LOAEL: 18,000 mg/kg  
Application Route: oral (feed)  
Exposure time: 28 d  
Method: OECD Test Guideline 407

Species: Rabbit  
NOAEL: 826 mg/kg  
Application Route: Skin contact  
Exposure time: 20 d  
Method: OECD Test Guideline 410

### **Aspiration toxicity**

Not classified based on available information.

### **Ingredients:**

#### **Trimethylpentanediol isobutyrate:**

Not classified due to data which are conclusive although insufficient for classification.

#### **Cumene:**

May be fatal if swallowed and enters airways.

### **Further information**

#### **Product:**

Remarks: No data available

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### SECTION 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

##### Ingredients:

##### **Cumene hydroperoxide:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 3.9 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 18 mg/l  
aquatic invertebrates Exposure time: 48 h

Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 1.6 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

##### **2-Butanone, peroxide:**

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): 44.2 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

NOEC (Poecilia reticulata (guppy)): 18 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 39 mg/l  
aquatic invertebrates Exposure time: 48 h  
Method: OECD Test Guideline 202

NOEC (Daphnia magna (Water flea)): 26.7 mg/l  
Method: OECD Test Guideline 202

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 5.6  
mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 2.1  
mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50 (Bacteria): 48 mg/l  
Exposure time: 0.5 h  
Method: OECD Test Guideline 209

##### **Trimethylpentanediol isobutyrate:**

Toxicity to fish : NOEC (Fish):  $\geq$  6 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia):  $\geq$  1.46 mg/l

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aquatic invertebrates      Exposure time: 48 h  
NOEC (Daphnia): 0.7 mg/l  
Exposure time: 21 d

Toxicity to algae      :    EC50 (Chlorella pyrenoidosa): > 7.49 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)      :    LOEC (Daphnia magna (Water flea)): 0.7 mg/l  
Exposure time: 21 d

### Ecotoxicology Assessment

Acute aquatic toxicity      :    This product has no known ecotoxicological effects.

Chronic aquatic toxicity      :    Harmful to aquatic life with long lasting effects.

### Cumene:

Toxicity to fish      :    LC50 (Oncorhynchus mykiss (rainbow trout)): 4.8 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates      :    EC50 (Daphnia magna (Water flea)): 2.14 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae      :    EC50 (Desmodesmus subspicatus (green algae)): 2.01 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)      :    NOEC (Daphnia magna (Water flea)): 0.35 mg/l  
Exposure time: 21 d  
Method: OECD Test Guideline 211

Toxicity to microorganisms      :    EC50: > 2,000 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

### Ecotoxicology Assessment

Chronic aquatic toxicity      :    Toxic to aquatic life with long lasting effects.

### acetophenone:

Toxicity to fish      :    LC50 (Pimephales promelas (fathead minnow)): 162 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates      :    EC50 (Daphnia magna (Water flea)): 528 mg/l  
Exposure time: 48 h

Toxicity to algae      :    EC50 (Pseudokirchneriella subcapitata (green algae)): 86.4 mg/l  
Exposure time: 72 h

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Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 24.8 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Toxicity to microorganisms : IC50: > 1,000 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

### Butanone:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 2,993 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 308 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 2,029 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 201

Toxicity to microorganisms : NOEC (Pseudomonas putida): 1,150 mg/l  
Exposure time: 16 h  
Method: DIN 38 412 Part 8

### Hydrogen peroxide:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 16.4 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia pulex (Water flea)): 2.4 mg/l  
Exposure time: 48 h

Toxicity to algae : EC50 (Skeletonema costatum (marine diatom)): 1.38 mg/l  
Exposure time: 72 h

NOEC (Skeletonema costatum (marine diatom)): 0.63 mg/l  
Exposure time: 72 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.63 mg/l  
Exposure time: 21 d

Toxicity to microorganisms : EC50: Method: OECD Test Guideline 209

### N-Methyl-2-pyrrolidone:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 500 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l



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aquatic invertebrates	Exposure time: 24 h Method: DIN 38412
	EC50 (Palaeomonetes vulgaris (Grass shrimp)): 1,107 mg/l Exposure time: 96 h
Toxicity to algae	: EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): > 500 mg/l Exposure time: 72 h
	NOEC (Desmodesmus subspicatus (green algae)): 125 mg/l Exposure time: 72 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC (Daphnia magna (Water flea)): 12.5 mg/l Exposure time: 21 d Method: OECD Test Guideline 211
	LOEC (Daphnia magna (Water flea)): 25 mg/l Exposure time: 21 d Method: OECD Test Guideline 211
Toxicity to microorganisms	: EC50: > 600 mg/l Exposure time: 0.5 h Method: ISO 8192

### Persistence and degradability

#### Ingredients:

##### **Cumene hydroperoxide:**

Biodegradability : Result: Not readily biodegradable.  
Method: OECD Test Guideline 301B

##### **2-Butanone, peroxide:**

Biodegradability : Result: Readily biodegradable.  
Method: OECD Test Guideline 301D

##### **Trimethylpentanediol isobutyrate:**

Biodegradability : Result: rapidly biodegradable  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

##### **Cumene:**

Biodegradability : Result: Readily biodegradable.

##### **acetophenone:**

Biodegradability : Result: Readily biodegradable.  
Method: OECD Test Guideline 301C

##### **Butanone:**

Biodegradability : Result: Readily biodegradable.

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Method: OECD Test Guideline 301D

### **Benzenemethanol, alpha,alpha-dimethyl-:**

Biodegradability : Remarks: No data available

### **Hydrogen peroxide:**

Biodegradability : Result: Readily biodegradable.

### **N-Methyl-2-pyrrolidone:**

Biodegradability : Result: Readily biodegradable.  
Method: OECD Test Guideline 301C

### **Bioaccumulative potential**

#### **Ingredients:**

#### **Cumene hydroperoxide:**

Partition coefficient: n-octanol/water : log Pow: 1.6

#### **2-Butanone, peroxide:**

Partition coefficient: n-octanol/water : log Pow: < 0.3 (25 °C)

#### **Trimethylpentanediol isobutyrate:**

Bioaccumulation : Species: Fish  
Bioconcentration factor (BCF): 1.95

Partition coefficient: n-octanol/water : log Pow: 4.91 (25 °C)

#### **Cumene:**

Bioaccumulation : Bioconcentration factor (BCF): 94.69  
Remarks: Calculation

Partition coefficient: n-octanol/water : log Pow: 3.55 (23 °C)

#### **acetophenone:**

Bioaccumulation : Bioconcentration factor (BCF): 0.48

Partition coefficient: n-octanol/water : log Pow: 1.63

#### **Butanone:**

Partition coefficient: n-octanol/water : log Pow: 0.3 (40 °C)

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### **Benzenemethanol, alpha,alpha-dimethyl-:**

Partition coefficient: n-octanol/water : Remarks: No data available

### **Hydrogen peroxide:**

Partition coefficient: n-octanol/water : log Pow: -1.57  
Remarks: Calculation

### **N-Methyl-2-pyrrolidone:**

Partition coefficient: n-octanol/water : log Pow: -0.46 (25 °C)

### **Mobility in soil**

No data available

### **Other adverse effects**

#### **Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances  
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Toxic to aquatic life with long lasting effects.

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## SECTION 13. DISPOSAL CONSIDERATIONS

### **Disposal methods**

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
Dispose of wastes in an approved waste disposal facility.

Contaminated packaging : Empty remaining contents.  
Dispose of as unused product.  
Do not re-use empty containers.  
Do not burn, or use a cutting torch on, the empty drum.

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## SECTION 14. TRANSPORT INFORMATION

### **International Regulations**

#### **UNRTDG**

UN number : UN 3105  
Proper shipping name : ORGANIC PEROXIDE TYPE D, LIQUID

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(METHYL ETHYL KETONE PEROXIDE(S), CUMYL HYDROPEROXIDE)  
Class : 5.2  
Packing group : Not assigned by regulation  
Labels : 5.2

### IATA-DGR

UN/ID No. : UN 3105  
Proper shipping name : Organic peroxide type D, liquid  
(Methyl ethyl ketone peroxide(s), Cumyl hydroperoxide)  
Class : 5.2  
Packing group : Not assigned by regulation  
Labels : Organic Peroxides, Keep Away From Heat  
Packing instruction (cargo aircraft) : 570  
Packing instruction (passenger aircraft) : 570

### IMDG-Code

UN number : UN 3105  
Proper shipping name : ORGANIC PEROXIDE TYPE D, LIQUID  
(METHYL ETHYL KETONE PEROXIDE(S), CUMYL HYDROPEROXIDE)  
Class : 5.2  
Packing group : Not assigned by regulation  
Labels : 5.2  
EmS Code : F-J, S-R  
Marine pollutant : yes

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

### Domestic regulation

#### 49 CFR

UN/ID/NA number : UN 3105  
Proper shipping name : Organic peroxide type D, liquid  
(Methyl ethyl ketone peroxide, <=17%, Cumyl hydroperoxide, <=44%)  
Class : 5.2  
Packing group : Not assigned by regulation  
Labels : ORGANIC PEROXIDE  
ERG Code : 145  
Marine pollutant : yes

## SECTION 15. REGULATORY INFORMATION

### EPCRA - Emergency Planning and Community Right-to-Know

#### CERCLA Reportable Quantity

Ingredients	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Cumene hydroperoxide	80-15-9	10	23

#### SARA 304 Extremely Hazardous Substances Reportable Quantity

Ingredients	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
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Hydrogen peroxide	7722-84-1	1000	*
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\*: Calculated RQ exceeds reasonably attainable upper limit.

**SARA 311/312 Hazards** : Fire Hazard  
Reactivity Hazard  
Acute Health Hazard  
Chronic Health Hazard

**SARA 302** : The following components are subject to reporting levels established by SARA Title III, Section 302:

Hydrogen peroxide      7722-84-1

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

Cumene hydroperoxide      80-15-9

dimethyl phthalate      131-11-3

Cumene      98-82-8

acetophenone      98-86-2

### Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

dimethyl phthalate      131-11-3  
Cumene      98-82-8  
acetophenone      98-86-2

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

Cumene hydroperoxide      80-15-9  
Cumene      98-82-8  
acetophenone      98-86-2  
Butanone      78-93-3

### Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

dimethyl phthalate      131-11-3

**California Prop. 65**      WARNING! This product contains a chemical known in the State of California to cause cancer.

Cumene      98-82-8

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

N-Methyl-2-pyrrolidone      872-50-4

**The ingredients of this product are reported in the following inventories:**

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DSL (CA) : All components of this product are on the Canadian DSL

NZIoC (NZ) : On the inventory, or in compliance with the inventory

TSCA (US) : On TSCA Inventory

### TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

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## SECTION 16. OTHER INFORMATION

### Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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The information provided in this Material 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

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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.

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