

# Safety Data Sheet



## SECTION 1: Identification of the substance/mixture and the company/undertaking

### 1.1 Production identifiers

Product name : NP-12  
Brand : CJ Chemicals LLC

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, synthesis of substances

### 1.3 Details of the supplier of the safety data sheet

Company : CJ Chemicals LLC  
3469 E Grand River Rd #112  
Howell, MI 48843  
United States

Telephone : +1 (888) 274-1044

### 1.4 Emergency Telephone

Emergency Phone # : 1-800-424-9300 CHEMTREC (USA)  
1-703-527-3887 CHEMTREC (international) 24 hours/day; 7 days/week

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## 2. HAZARDS IDENTIFICATION

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### Hazard classification

GHS classification in accordance with 29 CFR 1910.1200

Skin irritation - Category 2

Eye irritation - Category 2A

### Label elements

#### Hazard pictograms



Signal word: **WARNING!**

**Hazards**

Causes skin irritation.

Causes serious eye irritation.

**Precautionary statements****Prevention**

Wash skin thoroughly after handling.

Wear protective gloves/ eye protection/ face protection.

**Response**

IF ON SKIN: Wash with plenty of soap and water.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If skin irritation occurs: Get medical advice/ attention.

If eye irritation persists: Get medical advice and/or attention.

Take off contaminated clothing and wash before reuse.

**Other hazards**

Slipping hazard.

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

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**Synonyms:** 4-nonylphenol branched, ethoxylated

This product is a substance.

Component	CASRN	Concentration
4-nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), branched	127087-87-0	>= 97.0 %
Poly(ethylene oxide)	25322-68-3	<= 3.0 %
Dinonylphenyl polyoxyethylene	9014-93-1	<= 2.0 %

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### 4. FIRST AID MEASURES

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**Description of first aid measures****General advice:**

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air and keep comfortable for breathing; consult a physician.

**Skin contact:** Wash off with plenty of water. Suitable emergency safety shower facility should be available in work area.

**Eye contact:** Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

**Ingestion:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**Most important symptoms and effects, both acute and delayed:**

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

**Indication of any immediate medical attention and special treatment needed**

**Notes to physician:** If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Skin contact may aggravate preexisting dermatitis.

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## 5. FIREFIGHTING MEASURES

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### Extinguishing media

**Suitable extinguishing media:** Water fog or fine spray.. Dry chemical fire extinguishers.. Carbon dioxide fire extinguishers.. Foam.. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective..

**Unsuitable extinguishing media:** Do not use direct water stream.. May spread fire..

### Special hazards arising from the substance or mixture

**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.. Combustion products may include and are not limited to:.. Carbon monoxide.. Carbon dioxide..

**Unusual Fire and Explosion Hazards:** Container may rupture from gas generation in a fire situation.. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids..

### Advice for firefighters

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry.. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed.. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles.. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container.. Burning liquids may be extinguished by dilution with water.. Do not use direct water stream. May spread fire.. Move container from fire area if this is possible without hazard.. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage..

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet,

coat, trousers, boots, and gloves).. Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location.. For protective equipment in post-fire or non-fire clean-up situations, see Section 8 of the safety data sheet..

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Absorb with materials such as: Sand. Dirt. Collect in suitable and properly labeled containers. Do not use water for cleanup. See Section 13, Disposal Considerations, for additional information.

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## 7. HANDLING AND STORAGE

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**Precautions for safe handling:** Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

**Conditions for safe storage:** No specific requirements. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact. The shelf life given is for unopened containers stored under moderate temperature conditions.

### Storage stability

**Shelf life: Use within**  
24 Month

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value
Poly(ethylene oxide)	US WEEL	TWA aerosol	10 mg/m <sup>3</sup>

### Exposure controls

**Engineering controls:** Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

### Individual protection measures

**Eye/face protection:** Use chemical goggles.

**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** When prolonged or frequently repeated contact could occur, use protective clothing chemically resistant to this material. Selection of specific items such as faceshield, boots, apron, or full-body suit will depend on the task.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**Appearance**

<b>Physical state</b>	Liquid.
<b>Color</b>	Yellow
<b>Odor</b>	Mild
<b>Odor Threshold</b>	No test data available
<b>pH</b>	No test data available
<b>Melting point/range</b>	Not applicable to liquids
<b>Freezing point</b>	See Pour Point
<b>Boiling point (760 mmHg)</b>	> 200 °C (> 392 °F) <i>Calculated.</i>
<b>Flash point</b>	<b>closed cup</b> 238 °C (460 °F) <i>ASTM D 93</i>
<b>Evaporation Rate (Butyl Acetate = 1)</b>	No test data available
<b>Flammability (solid, gas)</b>	Not applicable to liquids
<b>Flammability (liquids)</b>	Not expected to be a static-accumulating flammable liquid.
<b>Lower explosion limit</b>	No test data available
<b>Upper explosion limit</b>	No test data available
<b>Vapor Pressure</b>	< 0.01 mmHg at 20 °C (68 °F) <i>Calculated.</i>
<b>Relative Vapor Density (air = 1)</b>	>10 <i>Calculated.</i>
<b>Relative Density (water = 1)</b>	1.066 at 20 °C (68 °F) / 20 °C <i>Calculated.</i>
<b>Water solubility</b>	partly soluble
<b>Partition coefficient: n-octanol/water</b>	log Pow: 1.73 - 2.56 <i>Estimated.</i>

<b>Auto-ignition temperature</b>	No test data available
<b>Decomposition temperature</b>	No test data available
<b>Kinematic Viscosity</b>	225 cSt <i>Calculated.</i>
<b>Explosive properties</b>	No test data available
<b>Oxidizing properties</b>	No test data available
<b>Molecular weight</b>	748 g/mol <i>Calculated.</i>
<b>Pour point</b>	13 °C ( 55 °F) <i>Calculated.</i>

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** No data available

**Chemical stability:** Thermally stable at typical use temperatures.

**Possibility of hazardous reactions:** Polymerization will not occur.

**Conditions to avoid:** Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.

**Incompatible materials:** Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials.. Decomposition products can include and are not limited to:. Aldehydes.. Ketones.. Organic acids..

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## 11. TOXICOLOGICAL INFORMATION

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*Toxicological information appears in this section when such data is available.*

### Information on likely routes of exposure

Ingestion, Inhalation, Skin contact, Eye contact.

**Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)**

#### Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

Typical for this family of materials.

LD50, Rat, 3,989 - 5,000 mg/kg

#### Information for components:

##### 4-nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), branched

Typical for this family of materials. LD50, Rat, 3,989 - 5,000 mg/kg

**Poly(ethylene oxide)**

Typical for this family of materials. LD50, Rat, > 10,000 mg/kg Estimated.

**Dinonylphenyl polyoxyethylene**

May cause abdominal discomfort or diarrhea. LD50, Rat, 8,200 mg/kg

**Acute dermal toxicity**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Typical for this family of materials.

LD50, Rabbit, 3,228 - 5,000 mg/kg

**Information for components:**

**4-nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), branched**

Typical for this family of materials. LD50, Rabbit, 3,228 - 5,000 mg/kg

**Poly(ethylene oxide)**

Typical for this family of materials. LD50, Rabbit, > 20,000 mg/kg

**Dinonylphenyl polyoxyethylene**

The dermal LD50 has not been determined.

**Acute inhalation toxicity**

Prolonged exposure is not expected to cause adverse effects. Vapor may cause irritation of the upper respiratory tract (nose and throat). Mist may cause irritation of upper respiratory tract (nose and throat).

The LC50 has not been determined.

**Information for components:**

**4-nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), branched**

The LC50 has not been determined.

**Poly(ethylene oxide)**

Typical for this family of materials. LC50, Rat, 6 Hour, dust/mist, > 2.5 mg/l No deaths occurred at this concentration.

**Dinonylphenyl polyoxyethylene**

The LC50 has not been determined.

**Skin corrosion/irritation**

Based on testing for product(s) in this family of materials:

Prolonged contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

May cause drying and flaking of the skin.

**Information for components:**

**4-nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), branched**

Prolonged contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

May cause drying and flaking of the skin.

**Poly(ethylene oxide)**

Prolonged exposure not likely to cause significant skin irritation.

May cause more severe response if skin is abraded (scratched or cut).

**Dinonylphenyl polyoxyethylene**

Prolonged contact may cause slight skin irritation with local redness.

**Serious eye damage/eye irritation**

Based on testing for product(s) in this family of materials:

May cause severe eye irritation.

May cause severe corneal injury.

**Information for components:**

**4-nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), branched**

May cause severe eye irritation.

May cause severe corneal injury.

**Poly(ethylene oxide)**

May cause slight temporary eye irritation.

Corneal injury is unlikely.

**Dinonylphenyl polyoxyethylene**

Liquid may cause severe eye irritation with corneal injury. Corneal burns may occur.

Vapor or mist may cause eye irritation.

**Sensitization**

For this family of materials:

Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:

No relevant data found.

**Information for components:**

**4-nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), branched**

For this family of materials:

Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:

No relevant data found.

**Poly(ethylene oxide)**

For this family of materials:

Did not cause allergic skin reactions when tested in humans.

For this family of materials, sensitization studies done in guinea pigs have been negative.

For respiratory sensitization:

No relevant data found.

**Dinonylphenyl polyoxyethylene**

Did not cause allergic skin reactions when tested in guinea pigs.



For respiratory sensitization:  
No relevant data found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**

Available data are inadequate to determine single exposure specific target organ toxicity.

**Information for components:**

**4-nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), branched**

Available data are inadequate to determine single exposure specific target organ toxicity.

**Poly(ethylene oxide)**

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Dinonylphenyl polyoxyethylene**

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Aspiration Hazard**

Based on physical properties, not likely to be an aspiration hazard.

**Information for components:**

**4-nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), branched**

Based on physical properties, not likely to be an aspiration hazard.

**Poly(ethylene oxide)**

Based on physical properties, not likely to be an aspiration hazard.

**Dinonylphenyl polyoxyethylene**

Based on physical properties, not likely to be an aspiration hazard.

**Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)**

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

For this family of materials:

In animals, effects have been reported on the following organs:

Heart.

**Information for components:**

**4-nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), branched**

For this family of materials:

In animals, effects have been reported on the following organs:

Heart.

**Poly(ethylene oxide)**

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

The use of topical applications containing this material may not be appropriate in severely burned patients.

This product should not be used in patients with kidney disease; these effects would not result from normal industrial handling.

**Dinonylphenyl polyoxyethylene**

No relevant data found.

**Carcinogenicity**

No relevant data found.

**Information for components:**

**4-nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), branched**

No relevant data found.

**Poly(ethylene oxide)**

Polyethylene glycols did not cause cancer in long-term animal studies.

**Dinonylphenyl polyoxyethylene**

No relevant data found.

**Teratogenicity**

No relevant data found.

**Information for components:**

**4-nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), branched**

No relevant data found.

**Poly(ethylene oxide)**

Did not cause birth defects or any other fetal effects in laboratory animals.

**Dinonylphenyl polyoxyethylene**

No relevant data found.

**Reproductive toxicity**

No relevant data found.

**Information for components:**

**4-nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), branched**

No relevant data found.

**Poly(ethylene oxide)**

In animal studies, did not interfere with reproduction.

**Dinonylphenyl polyoxyethylene**

No relevant data found.

**Mutagenicity**

For this family of materials: In vitro genetic toxicity studies were negative.

**Information for components:**

**4-nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), branched**

No relevant data found.

**Poly(ethylene oxide)**

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

**Dinonylphenyl polyoxyethylene**

No relevant data found.

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**12. ECOLOGICAL INFORMATION**

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*Ecotoxicological information appears in this section when such data is available.*

**Toxicity****Acute toxicity to fish**

For this family of materials:

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

For this family of materials:

LC50, Pimephales promelas (fathead minnow), 96 Hour, 1.6 - 24 mg/l

**Acute toxicity to aquatic invertebrates**

For this family of materials:

EC50, Daphnia magna (Water flea), 48 Hour, 23.1 mg/l, Method Not Specified.

**Persistence and degradability**

**Biodegradability:** For this family of materials: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

**Theoretical Oxygen Demand:** 2.11 - 2.45 mg/mg

**Chemical Oxygen Demand:** 2.2 mg/mg

**Bioaccumulative potential**

**Partition coefficient: n-octanol/water(log Pow):** 1.73 - 2.56 Estimated.

**Bioconcentration factor (BCF):** 3.6 - 12.6 Fish Estimated.

**Mobility in soil**

No relevant data found.

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**13. DISPOSAL CONSIDERATIONS**

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**Disposal methods:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR

UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

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## 14. TRANSPORT INFORMATION

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### DOT

Not regulated for transport

### Classification for SEA transport (IMO-IMDG):

<b>Proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Nonylphenol polyethylene glycol ether)
<b>UN number</b>	UN 3082
<b>Class</b>	9
<b>Packing group</b>	III
<b>Marine pollutant</b>	Nonylphenol polyethylene glycol ether
<b>Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b>	Consult IMO regulations before transporting ocean bulk

### Classification for AIR transport (IATA/ICAO):

<b>Proper shipping name</b>	Environmentally hazardous substance, liquid, n.o.s.(Nonylphenol polyethylene glycol ether)
<b>UN number</b>	UN 3082
<b>Class</b>	9
<b>Packing group</b>	III

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

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## 15. REGULATORY INFORMATION

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### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Skin corrosion or irritation  
 Serious eye damage or eye irritation

### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

**Components**

4-nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), branched

**CASRN**

127087-87-0

**Pennsylvania Worker and Community Right-To-Know Act:**

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

**California Prop. 65**

This product contains a chemical that is at or below California Propositions 65's "safe harbor level" as determined via a risk assessment. Therefore, the chemical is not required to be listed as a Prop 65 chemical on the SDS or label.

**United States TSCA Inventory (TSCA)**

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

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**16. OTHER INFORMATION**


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**Product Literature**

Additional information on this and other products may be obtained by visiting our web page. Additional information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure.

**Hazard Rating System****NFPA**

Health	Flammability	Instability
2	1	0

**Revision**

Identification Number: 179220 / A001 / Issue Date: 06/22/2020 / Version: 10.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

TWA	8-hr TWA
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

**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

**Information Source and References**

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. CJ Chemicals LLC and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.cjchemicals.com](http://www.cjchemicals.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.