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

- 1) Product identifier: NOM
- 2) Relevant identified uses of the substance or mixture and uses advised against:
  - Recommended use: Polymerization conditioner in synthesis.
  - Removal of use: No data available
- 3) Manufacture/Supplier/Distributor information:
  - Manufacture information:
    - Company name: ISU CHEMICAL CO., LTD
    - Address: 8, Seokdang-gil, Onsan-eup, Ulju-gun, Ulsan, Korea
    - Emergency telephone number: Tel. 052-231-5581 Fax. 052-231-5699

## 2. HAZARD IDENTIFICATION

- 1) Hazard classification: Skin sensitization Cat.1B  
Hazards to the aquatic environment, acute toxicity Cat.1  
Hazards to the aquatic environment, chronic toxicity Cat.1
- 2) Allocation label elements including precautionary statements
  - Hazard pictograms:



  - Hazard statements
    - H317 : May cause an allergic skin reaction.
    - H400 : Very toxic to aquatic organisms.
    - H410 : Very toxic to aquatic organisms in long-term contact.
  - Precautionary statements
    - Prevention:
      - P261 : Avoid breathing mist/vapours/spray.
      - P272 : Contaminated work clothing should not be allowed out of the workplace.
      - P273 : Avoid release to the environment.
      - P280 : Wear protective gloves/protective clothing/eye protection/face protection.
    - Response:
      - P302+P352 : IF ON SKIN: Wash with plenty of soap and water.
      - P321 : First aid measures such as washing your skin and eyes with water.
      - P333+P313 : If skin irritation occurs, seek medical examination.
      - P362+364 : Remove contaminated clothing and wash before reuse.
      - P391 : Collect the spills.
    - Storage: No data available
    - Disposal:
      - P501 : Dispose of contents container according to applicable regulations.

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- 3) Other hazards:  
 - No data available

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

1. Material type: Single substance
2. Chemical name: N-octyl mercaptan
3. Other means of identification: 1-octanediol
4. Cas No / Other Information
  - Cas No: 111-88-6
  - Eu No: 203-918-1


Components	Common name	CAS No.	Concentration(wt%)
N-octyl mercaptan	1-OCTANETHIOL	111-88-6	98.5~100

※ <1.5% by-product

Within the current knowledge of the supplier, Also within the applicable concentration Classified as a hazard to health or the environment This product does not contain any additives that should be reported in this section.

### 4. FIRST AID MEASURES

- 1) Following eye contact:
  - In case of contact with material, immediately flush eyes with running water for at least 20 minutes.
  - Get medical aid immediately.
- 2) Following skin contact:
  - Seek immediate medial assistance.
  - Wash skin with soap and water.
  - Remove and isolate contaminated clothing and shoes.
  - If skin irritation develops, seek medical advice and advice.
  - If skin irritation occurs remove all contaminated clothing. Wash your skin with water.
  - In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- 3) Following inhalation:
  - Move victim to fresh air.
  - Keep victim warm and quiet.
- 4) Following ingestion:
  - If swallowed and feel uncomfortable, seek medical advice.
  - Wash your mouth.
  - In case of ingestion or inhalation, do not use artificial respiration by oral cavity method

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and use appropriate respiratory medical equipment.

5) Advice to physician:

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

## 5. FIRE FIGHTING MEASURES

1) Suitable (and unsuitable) extinguishing media:


- Use alcohol foam, carbon dioxide, or water spray for digestion related to this material.
- Use dry sand and earth for extinguishment by smothering.
- Direct water (Unsuitable extinguishing media)

2) Special hazards arising from the substance or mixture:

- Flammable liquids and gases.
- Violent Polymerization reaction may cause fire and explosion.
- Explosive mixtures may be formed at or above flash point.
- Containers may explode when heated.
- High Flammability: easily ignited by heat, spark, flame.
- Runoff may create fire or explosion hazard.
- Vapor explosion hazard indoors, outdoors or in sewers.
- Vapors may form explosive mixtures with air.
- Inhalation and contact may irritate or burn the skin and eyes.
- Steam may be transferred to an ignition source and ignite
- Pyrolysis or combustion may produce irritating and very toxic gases during burning
- Some can burn but not ignite easily
- Non-flammable, the material itself does not burn, but may decompose on heating to produce corrosive / toxic fumes.

3) Special protective equipment for firefighters:

- Cautions ; Most of liquids are lighter than water.
- Rescuers should wear appropriate protective equipment.
- Most vapors are heavier than air and can spread along the ground and accumulate in low-lying or confined spaces.
- Substance may be transported hot.
- Move containers from fire area if you can do it without risk.
- Keep safety distance away from hazardous areas and extinguish.
- May be transported by melting. Be careful.
- Dig a ditch to dispose of extinguishing water and prevent material from dispersing.
- Fire involving Tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Fire involving Tanks: Cool containers with flooding quantities of water until well after fire is out.
- Fire involving Tanks: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.

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- Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.
- Fire involving Tanks: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

## 6. ACCIDENTAL RELEASE MEASURES

- 1) Health considerations and protective equipment:
  - Extremely fine particles may cause fire or explosion. Remove all sources of ignition
  - Immediately wipe spills and follow protective precautions.
  - Eliminate all ignition sources.
  - All equipment used when handling the product must be grounded.
  - Do not touch damaged containers or spills without wearing appropriate protective clothing.
  - Cover with plastic sheet to prevent spreading.
  - Prevent dust formation.
  - Stop leak if you can do it without risk.
  - A vapor suppressing foam may be used to reduce vapors.
  - Please note that materials and conditions to be avoided.
- 2) Environmental precautions:
  - Prevent entry into waterways, sewers, basements or confined areas.
  - Runoff may cause pollution.
  - Do not discharge into the environment.
- 3) For cleaning up:
  - Collect spillage.
  - Build a dike and collect water for extinguishing.
  - Absorb spills with inert material (eg dry sand or soil) and place in chemical waste containers.
  - Absorb liquid and wash contaminated area with detergent and water.
  - In case of large spill, create a ditch away from liquid spills. Use clean, explosion proof tools to collect absorbed material.
  - Keep spills in clean dry container with clean shovel, close loosely and remove container from spill area.
  - In case of powder leakage, cover with plastic sheet to prevent diffusion and keep dry.
  - In case of small spill, absorb into sand, non-combustible material and place into container.

## 7. HANDLING AND STORAGE

- 1) Precautions for safe handling:
  - Use only non-sparking tools.
  - Wash thoroughly after handling.

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- Do not eat, drink or smoke when using this product.
- Do not apply pressure, cut, weld, solder, bond, drill, grind or expose to heat, open flames, sparks, static electricity or other sources of ignition.
- Avoid prolonged or prolonged skin contact.
- Ground all equipment when handling materials.
- Follow all MSDS and label precautions as product residues may remain after emptying containers.
- Because there is a risk of oxygen deficiency when working in a low-lying confined space, measure oxygen concentration and ventilate.
- Take antistatic measures.
- Take precautionary measures against static discharge.
- Handle and store carefully.
- Use explosion-proof electrical, ventilation, lighting and lighting equipment.
- Please note that materials and conditions to be avoided.
- Refer to engineering management and personal protective equipment.
- Be careful of high temperatures.
- Pay attention to the heat.

2) Conditions for safe storage (including any incompatibilities):

- The empty drum should be completely drained, properly blocked and immediately returned to the drum regulator or properly positioned.
- Keep away from heat, sparks and heat. (no smoking)
- Seal container tightly.
- Keep food and drink away.
- Please note that materials and conditions to be avoided.
- Store in a well-ventilated place and keep at a low temperature.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

1) Chemical exposure limits, Biological exposure standard:


Components	Occupational exposure limits (Domestic)	ACGIH	Biological limit values
N-Octyl Mercaptan	No data available	Not applicable	Not applicable

2) Appropriate engineering controls: Install eyewash facilities and shower facilities in facilities storing or using this material.

3) Personal protection equipment:

○ Respiratory protection:

- Wear respiratory protective equipment certified by the Occupational Safety and Health Agency according to the physical and chemical properties of the gas / liquid exposed  
[For gas / liquid substances the following respiratory protection is recommended

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Gas masks (for organic compounds (if acid gases are acid gases)) or sequestered Gas masks (for organic compounds (for acid gases, for acid gases)) or direct type front face type Gas masks (for organic compounds (for acid gases, acid gases)) or other masks(For organic compounds (for acid gases, for acid gases)) or electric gas mask

- In case of lack of oxygen (<19.5%), wear breathing mask or self-contained breathing apparatus.

○ Eye protection:

- Wear protective goggles or breathable goggles to protect eyes from vaporous organic substances that cause eye irritation or other health hazards.  
- Install emergency washing and shower facilities in a location where workers can easily access them.

○ Hand protection:


- Wear appropriate protective gloves by considering physical and chemical properties of chemicals

○ Body protection:

- Wear appropriate protective clothing by considering physical and chemical properties of chemicals.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

- 1) Appearance(Physical state, color, etc): Colorless liquide.
- 2) Oder: Very weak smell.
- 3) Oder threshold: No data available
- 4) pH: No data available
- 5) Melting point/freezing point: -49.2 °C
- 6) Initial boiling point and boiling range: 196-200 °C
- 7) Flash point: 69 °C
- 8) Evaporation rate: No data available
- 9) Flammability(solid, gas): Not applicable
- 10) Upper/lower flammability or explosive limits: - / 0.8 %
- 11) Vapour pressure: 0.4245 mmHg @ 25°C
- 12) Solubility(ies): 물 19.84 mg/L(25 °C, QSAR)
- 13) Vapour density: 5.0
- 14) Relative density: 0.8475 at 15/4°C
- 15) n-octanol/water partition coefficient: 4.21
- 16) Auto ignition temperature: 240°C
- 17) Decomposition temperature: No data available
- 18) Viscosity: 1.46 cp (25°C), 1.18 cp (40°C)
- 19) Molecular weight(mass): 146.30

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## 10. STABILITY AND REACTIVITY

- 1) Stability and hazardous reactivity:
  - Flammable liquids and gases.
  - Violent Polymerization reaction may cause fire and explosion.
  - Explosive mixtures may be formed at or above flash point
  - Containers may explode when heated.
  - High Flammability: easily ignited by heat, spark, flame.
  - Runoff may create fire or explosion hazard.
  - Vapor explosion hazard indoors, outdoors or in sewers.
  - Vapors may form explosive mixtures with air.
  - Vapors can cause dizziness or suffocation without awareness
  - Inhalation and contact may irritate or burn the skin and eyes.
  - Fire may produce irritating, corrosive or toxic gases.
- 2) Conditions to avoid:
  - Keep away from heat, sparks, flames and heat.(no smoking)
- 3) Incompatible materials:
  - Flammable, reducing materials
  - Segregation group
- 4) Hazardous decomposition products:
  - During burning, pyrolysis or combustion can produce irritating and highly toxic gases.
  - Corrosive / toxic fumes
  - Irritant, Toxic Gases

## 11. TOXICOLOGICAL INFORMATION

- 1) Exposure route information
  - Short term exposure may cause irritation, nausea, vomiting, headache, bluish skin color and convulsions.
  - Short-term exposure may cause bluish skin color, kidney damage, liver damage, coma
  - Short term, long term exposure may cause irritation, allergic reactions.
  - Short-term, long-term exposure to irritation.
- 2) Health hazard information
  - Acute toxicity:
    - Oral: LD50 2,436 mg/kg (Rat, OECD TG 420)
    - Dermal: LD50 > 1,680 mg/kg (Rabbit, OECD TG 402)
    - Inhalation(Vapor): LC50 > 518 ppm (3.10 mg/L, Rat)
  - Skin corrosion/Irritation:
    - Not Classified(Rabbit, OECD TG 404)
  - Serious eye damage/irritation:
    - Not Classified(Rabbit, OECD TG 405)

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- Respiratory sensitization:
  - No data available
- Skin sensitization:
  - a weak sensitivity(Guinea pig, OECD TG 406)
- Carcinogenicity:
  - Not Classified
- Germ cell mutagenicity:
  - All in vitro and in vivo test results negative.
- Reproductive toxicity:
  - No significant effects(reproductive/developmental toxicity screening tests)
- Specific target organ toxicity (single exposure):
  - No data available
- Specific target organ toxicity (repeated exposure):
  - Not Classified, NOAEL = 50 mg/kg/day (OECD TG 422)
- Aspiration hazard:
  - No data available


## 12. ECOLOGICAL INFORMATION

- 1) Aquatic toxicity:
  - Fish: LC50(96hr) 0.326 mg/L, *Oryzias latipes*
  - Crustacean: EC50(48hr) 0.0243 mg/l, *Daphnia magna*  
 EC50 (21day) > 0.00467 mg/L, NOEC (21day) ≒ 0.00108 mg/L
  - Aquatic algae: ErC50(24-48hr) 0.161 mg/L, NOECr (24-72hr) = 0.0483 mg/L,  
*Selenastrum capricornutum*
- 2) Persistence and degradation:
  - Residue : log Kow 4.21 (20 °C)
  - Degradable : No data available
- 3) Bioaccumulative potential:
  - Concentration : BCF 11.83 (QSAR)
  - Biodegradable : No data available
- 4) Mobility in soil: May be strongly adsorbed when spilled into soil
- 5) Other adverse effects: May volatilize rapidly when discharged into the atmosphere or aquatic environment.

## 13. DISPOSAL CONSIDERATIONS

- 1) Disposal methods:
  - Dispose of contents and container in accordance with local regulations.
- 2) Precautions (including disposal of contaminated container or package):
  - Dispose of contents container according to the regulations.



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#### 14. TRANSPORT INFORMATION


- 1) UN No.: 3336
- 1) Proper shipping name: MERCAPTANS, LIQUID, FLAMMABLE, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S.)
- 2) Class or division: 3
- 3) Packing group: 1
- 4) Marine pollutant: No data available
- 5) Special safety response for transportation or transportation measure:
  - Type of emergency measures in case of fire: F-E
  - Emergency measures in case of spill: S-D

#### 15. REGULATORY INFORMATION

- 1) Occupational Safety and Health Act in Korea: Not applicable
- 2) Chemicals Control Act in Korea: Not applicable
- 3) Safety Control of Dangerous Substances Act in Korea: Class 4 Second Petroleum liquids(Non-aqueous), 1000L
- 4) Wastes Control Act in Korea: Not applicable
- 5) Other regulations in KOREA and Abroad regulations:
  - Other regulation (Domestic):
    - Persistent Organic Pollutants (POPs) Control Act: Not applicable
  - National regulations:
    - U.S.A. management information(OSHA regulation): Not applicable
    - U.S.A. management information(CERCLA regulation): 453.599(kg)
    - U.S.A. management information(EPCRA 302 regulation): Not applicable
    - U.S.A. management information(EPCRA 304 regulation): Not applicable
    - U.S.A. management information(EPCRA 313 regulation): Not applicable
    - U.S.A. management information(Rotterdam Convention on Substances): Not applicable
    - U.S.A. management information(Stockholm Convention on Substances): Not applicable
    - U.S.A. management information(Mont- real Protocol on Substances): Not applicable
    - EU Classification (Classification): Not applicable
    - EU Classification (Risk Phrases): Not applicable
    - EU Classification (Safety Phrases): Not applicable

#### 16. OTHER INFORMATION

- 1) Reference:

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- Korea Occupational Safety & Health Agency MSDS
- IMDG Code
- OECD SIDS
- ChemWATCH
- IUCLID
- HSDB
- IARC
- ECOTOX
- NITE
- Recommendations on the transport of dangerous goods
- NCIS
- Emergency response guide book
- ECOSAR
- QSAR
- EU RAR
- The Chemical Database
- ICSC
- RTECS
- NIOSH Pocket guide
- ESIS
- ECHA CHEM
- HPVIS

2) Print date: 2019. 02. 18

3) Number of revised/Date of last revision: 4 / 2022. 02. 24

4) Other: No data available