

**n-Dodecyl Mercaptan**

Version 4.10

Revision Date 2017-05-31

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product information**

Product Name : n-Dodecyl Mercaptan  
Material : 1111421, 1021557, 1086421, 1071323, 1086420, 1086419,  
1021569, 1024819, 1024820, 1021558, 1021567, 1021568,  
1021571, 1021572, 1021573, 1021574, 1021575, 1033862,  
1032614, 1021566, 1021570

**EC-No.Registration number**

| Chemical name       | CAS-No.<br>EC-No.<br>Index No. | Legal Entity<br>Registration number                                  |
|---------------------|--------------------------------|----------------------------------------------------------------------|
| n-Dodecyl Mercaptan | 112-55-0<br>203-984-1          | Chevron Phillips Chemicals International NV<br>01-2119491318-31-0000 |

Relevant Identified Uses : Use as an intermediate  
Supported

**Company** : Chevron Phillips Chemical Company LP  
Specialty Chemicals  
10001 Six Pines Drive  
The Woodlands, TX 77380

Local : Chevron Phillips Chemicals International N.V.  
Airport Plaza (Stockholm Building)  
Leonardo Da Vincilaan 19  
1831 Diegem  
Belgium

SDS Requests: (800) 852-5530  
Technical Information: (832) 813-4862  
Responsible Party: Product Safety Group  
Email:sds@cpchem.com

**Emergency telephone:**

**Health:**  
866.442.9628 (North America)

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1.832.813.4984 (International)

**Transport:**

CHEMTREC 800.424.9300 or 703.527.3887(int'l)

Asia: CHEMWATCH (+612 9186 1132)

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Mexico CHEMTREC 01-800-681-9531 (24 hours)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Responsible Department : Product Safety and Toxicology Group  
 E-mail address : SDS@CPChem.com  
 Website : www.CPChem.com

**SECTION 2: Hazards identification****Classification of the substance or mixture****REGULATION (EC) No 1272/2008**

|                                      |                                                                |
|--------------------------------------|----------------------------------------------------------------|
| Skin corrosion, Category 1C          | H314:<br>Causes severe skin burns and eye damage.              |
| Skin sensitization, Sub-category 1A  | H317:<br>May cause an allergic skin reaction.                  |
| Acute aquatic toxicity, Category 1   | H400:<br>Very toxic to aquatic life.                           |
| Chronic aquatic toxicity, Category 1 | H410:<br>Very toxic to aquatic life with long lasting effects. |

**Label elements****Labeling (REGULATION (EC) No 1272/2008)**

Hazard pictograms :



Signal Word : Danger

|                   |                        |                                                                                                                                           |
|-------------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Hazard Statements | : H314<br>H317<br>H410 | Causes severe skin burns and eye damage.<br>May cause an allergic skin reaction.<br>Very toxic to aquatic life with long lasting effects. |
|-------------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|

|                          |                                                                                              |                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Precautionary Statements | : <b>Prevention:</b><br>P273<br>P280                                                         | Avoid release to the environment.<br>Wear protective gloves/ protective clothing/<br>eye protection/ face protection.                                                                                                                                                                                                                              |
|                          | : <b>Response:</b><br>P301 + P330 + P331<br>P303 + P361 + P353<br>P305 + P351 + P338<br>P310 | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.<br>IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.<br>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.<br>Immediately call a POISON CENTER/doctor. |

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Hazardous ingredients which must be listed on the label:

- 112-55-0 n-Dodecyl Mercaptan

**SECTION 3: Composition/information on ingredients**

Synonyms : Normal Dodecyl Mercaptan  
1-dodecanethiol  
NDDM  
dodecanethiol

Molecular formula : C<sub>12</sub>H<sub>26</sub>S

**Mixtures****Hazardous ingredients**

| Chemical name       | CAS-No.<br>EC-No.<br>Index No. | Classification<br>(REGULATION (EC) No<br>1272/2008)                                            | Concentration<br>[wt%] |
|---------------------|--------------------------------|------------------------------------------------------------------------------------------------|------------------------|
| n-Dodecyl Mercaptan | 112-55-0<br>203-984-1          | Skin Corr. 1C; H314<br>Skin Sens. 1A; H317<br>Aquatic Acute 1; H400<br>Aquatic Chronic 1; H410 | 98,5                   |

For the full text of the H-Statements mentioned in this Section, see Section 16.

**SECTION 4: First aid measures**

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

If inhaled : If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.

In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.

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. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. Take victim immediately to hospital.

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**SECTION 5: Firefighting measures**

|                                                |                                                                                                                                                                                                                        |
|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flash point                                    | : 133 °C (271 °F)                                                                                                                                                                                                      |
| Autoignition temperature                       | : 230 °C (446 °F)                                                                                                                                                                                                      |
| Unsuitable extinguishing media                 | : High volume water jet.                                                                                                                                                                                               |
| Specific hazards during fire fighting          | : Do not allow run-off from fire fighting to enter drains or water courses.                                                                                                                                            |
| Special protective equipment for fire-fighters | : Wear self-contained breathing apparatus for firefighting if necessary.                                                                                                                                               |
| 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. |
| Fire and explosion protection                  | : Normal measures for preventive fire protection.                                                                                                                                                                      |
| Hazardous decomposition products               | : Carbon oxides. Sulfur oxides.                                                                                                                                                                                        |

**SECTION 6: Accidental release measures**

|                           |                                                                                                                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions      | : Use personal protective equipment. Ensure adequate ventilation.                                                                                                                   |
| 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 for cleaning up   | : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.                          |

**SECTION 7: Handling and storage****Handling**

|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Advice on safe handling                         | : To avoid spills during handling keep bottle on a metal tray. Do not breathe vapors/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used. |
| Advice on protection against fire and explosion | : Normal measures for preventive fire protection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

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**Storage**

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Electrical installations / working materials must comply with the technological safety standards.

**SECTION 8: Exposure controls/personal protection****Ingredients with workplace control parameters****PT**

| Componentes         | Bases  | Valor  | Parâmetros de controlo | Nota                  |
|---------------------|--------|--------|------------------------|-----------------------|
| n-Dodecyl Mercaptan | PT OEL | VLE-MP | 0,1 ppm,               | SC, irritação do TRS, |

irritação do TRS  
irritação do trato respiratório superior  
SC Agente com potencial para produzir sensibilização pela via cutânea

**IE**

| Ingredients         | Basis  | Value              | Control parameters | Note |
|---------------------|--------|--------------------|--------------------|------|
| n-Dodecyl Mercaptan | IE OEL | OELV - 8 hrs (TWA) | 0,1 ppm,           |      |

**ES**

| Componentes         | Base   | Valor  | Parâmetros de control | Nota |
|---------------------|--------|--------|-----------------------|------|
| n-Dodecyl Mercaptan | ES VLA | VLA-ED | 0,1 ppm,              |      |

**BE**

| Bestanddelen        | Basis  | Waarde   | Controleparameters  | Opmerking |
|---------------------|--------|----------|---------------------|-----------|
| n-Dodecyl Mercaptan | BE OEL | TGG 8 hr | 0,1 ppm, 0,84 mg/m3 |           |

**Engineering measures**

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

**Personal protective equipment**

Respiratory protection : Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into

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consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

- Eye protection : Eye wash bottle with pure water. Wear face-shield and protective suit for abnormal processing problems. Tightly fitting safety goggles.
- Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate: Complete head face and neck protection. Rubber apron. Footwear protecting against chemicals.
- Hygiene measures : Remove contaminated clothing and protective equipment before entering eating areas. Wash hands before eating, drinking, or smoking.

**SECTION 9: Physical and chemical properties****Information on basic physical and chemical properties****Appearance**

- Physical state : Liquid
- Color : Colorless
- Odor : Repulsive

**Safety data**

- Flash point : 133 °C (271 °F)
- Lower explosion limit : No data available
- Upper explosion limit : No data available
- Oxidizing properties : no
- Autoignition temperature : 230 °C (446 °F)
- Molecular formula : C<sub>12</sub>H<sub>26</sub>S
- Molecular weight : 202,44 g/mol
- pH : Not applicable
- Pour point : No data available
- Boiling point/boiling range : 270 °C (518 °F)
- Vapor pressure : 0,00 mbar  
at 25 °C (77 °F)
- Relative density : No data available
- Water solubility : 0,0054 mg/l  
Method: OECD Test Guideline 105

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|                                        |                               |
|----------------------------------------|-------------------------------|
| Partition coefficient: n-octanol/water | : No data available           |
| Viscosity, dynamic                     | : 2,98 cP<br>at 25 °C (77 °F) |
| Relative vapor density                 | : 1<br>(Air = 1.0)            |
| Evaporation rate                       | : No data available           |

**SECTION 10: Stability and reactivity**

|                    |                                                                                                                                        |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Chemical stability | : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------|

**Possibility of hazardous reactions**

|                                  |                                                                                                   |
|----------------------------------|---------------------------------------------------------------------------------------------------|
| Conditions to avoid              | : Heat, sparks, fire, and oxidizing agents.                                                       |
| Materials to avoid               | : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc. |
| Hazardous decomposition products | : Carbon oxides<br>Sulfur oxides                                                                  |
| Other data                       | : No decomposition if stored and applied as directed.                                             |

**SECTION 11: Toxicological information****Acute oral toxicity**

|                     |                                                    |
|---------------------|----------------------------------------------------|
| n-Dodecyl Mercaptan | : LD50: > 5.000 mg/kg<br>Species: Rat<br>Sex: male |
|---------------------|----------------------------------------------------|

**n-Dodecyl Mercaptan  
Skin irritation**

: Extremely corrosive and destructive to tissue.

**n-Dodecyl Mercaptan  
Eye irritation**

: May cause irreversible eye damage.

**Sensitization**

|                     |                                            |
|---------------------|--------------------------------------------|
| n-Dodecyl Mercaptan | : May cause sensitization by skin contact. |
|---------------------|--------------------------------------------|

**n-Dodecyl Mercaptan  
Repeated dose toxicity**

: Species: Rat  
Application Route: Inhalation  
Dose: 0, 0.43, 1.6, 7.3 ppm  
Exposure time: 4 wk  
NOEL: 0,01 mg/l 1.7 ppm  
Lowest observable effect level: 0,06 mg/l 7.3 ppm

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Target Organs: Skin

**n-Dodecyl Mercaptan  
Aspiration toxicity**

: May be harmful if swallowed and enters airways.

**CMR effects**

n-Dodecyl Mercaptan

: Carcinogenicity: Not available  
 Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.  
 Teratogenicity: Animal testing did not show any effects on fetal development.  
 Reproductive toxicity: Animal testing did not show any effects on fertility.

**n-Dodecyl Mercaptan  
Further information**

: Solvents may degrease the skin.

**SECTION 12: Ecological information****Toxicity to fish**

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: LC50: > 100 mg/l  
 Exposure time: 96 h  
 Species: Oncorhynchus mykiss (rainbow trout)

**Toxicity to daphnia and other aquatic invertebrates**

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: EC50: 1 - 10 mg/l  
 Exposure time: 48 h  
 Species: Daphnia magna (Water flea)  
 Method: OECD Test Guideline 202

**Toxicity to algae**

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: EC50: 0,0145 mg/l  
 Exposure time: 72 h  
 Species: Pseudokirchneriella subcapitata (green algae)  
 Growth inhibition Method: OECD Test Guideline 201

M-Factor  
 dodecane-1-thiol

: 10

**Bioaccumulation**

n-Dodecyl Mercaptan

: Bioconcentration factor (BCF): 234  
 Method: Estimated based on individual component values.

**Biodegradability**

n-Dodecyl Mercaptan

: Result: Not readily biodegradable.  
 Method: OECD Test Guideline 301  
 Information given is based on data obtained from similar

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substances.

**Ecotoxicology Assessment**

Acute aquatic toxicity  
n-Dodecyl Mercaptan : Very toxic to aquatic life.

Chronic aquatic toxicity  
n-Dodecyl Mercaptan : Very toxic to aquatic life with long lasting effects.

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

**SECTION 13: Disposal considerations**

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product : 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. Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

**SECTION 14: Transport information**

**The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).**

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

**US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)**

UN1760, CORROSIVE LIQUIDS, N.O.S., (N-DODECYL MERCAPTAN), 8, III

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**

UN1760, CORROSIVE LIQUID, N.O.S., (N-DODECYL MERCAPTAN), 8, III, (133 °C), MARINE POLLUTANT, (N-DODECYL MERCAPTAN)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

UN1760, CORROSIVE LIQUID, N.O.S., (N-DODECYL MERCAPTAN), 8, III

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**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**

UN1760, CORROSIVE LIQUID, N.O.S., (N-DODECYL MERCAPTAN), 8, III, (E),  
 ENVIRONMENTALLY HAZARDOUS, (N-DODECYL MERCAPTAN)

**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**

UN1760, CORROSIVE LIQUID, N.O.S., (N-DODECYL MERCAPTAN), 8, III,  
 ENVIRONMENTALLY HAZARDOUS, (N-DODECYL MERCAPTAN)

**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**

UN1760, CORROSIVE LIQUID, N.O.S., (N-DODECYL MERCAPTAN), 8, III,  
 ENVIRONMENTALLY HAZARDOUS, (N-DODECYL MERCAPTAN)

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

**Other information** : n- Dodecyl Mercaptan, S.T. 1, Cat. X

**SECTION 15: Regulatory information****National legislation**

**Major Accident Hazard Legislation** : 96/82/EC Update: 2003  
 Dangerous for the environment  
 9a  
 Quantity 1: 100 t  
 Quantity 2: 200 t

**Water contaminating class (Germany)** : WGK 3 highly water endangering

**Notification status**

|                                     |   |                                                        |
|-------------------------------------|---|--------------------------------------------------------|
| Europe REACH                        | : | On the inventory, or in compliance with the inventory  |
| United States of America (USA) TSCA | : | On TSCA Inventory                                      |
| Canada DSL                          | : | All components of this product are on the Canadian DSL |
| Australia AICS                      | : | On the inventory, or in compliance with the inventory  |
| New Zealand NZIoC                   | : | On the inventory, or in compliance with the inventory  |
| Japan ENCS                          | : | On the inventory, or in compliance with the inventory  |
| Korea KECI                          | : | On the inventory, or in compliance with the inventory  |
| Philippines PICCS                   | : | On the inventory, or in compliance with the inventory  |
| China IECSC                         | : | On the inventory, or in compliance with the inventory  |

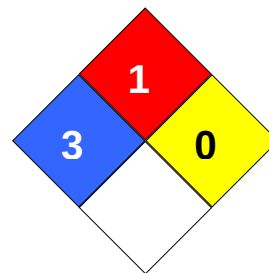
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**SECTION 16: Other information**

**NFPA Classification** : Health Hazard: 3  
Fire Hazard: 1  
Reactivity Hazard: 0

**Further information**

Legacy SDS Number : 460130

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

The information in this SDS pertains only to the product as shipped.

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

**Key or legend to abbreviations and acronyms used in the safety data sheet**

|        |                                                         |       |                                                         |
|--------|---------------------------------------------------------|-------|---------------------------------------------------------|
| ACGIH  | American Conference of Government Industrial Hygienists | LD50  | Lethal Dose 50%                                         |
| AICS   | Australia, Inventory of Chemical Substances             | LOAEL | Lowest Observed Adverse Effect Level                    |
| DSL    | Canada, Domestic Substances List                        | NFPA  | National Fire Protection Agency                         |
| NDSL   | Canada, Non-Domestic Substances List                    | NIOSH | National Institute for Occupational Safety & Health     |
| CNS    | Central Nervous System                                  | NTP   | National Toxicology Program                             |
| CAS    | Chemical Abstract Service                               | NZIoC | New Zealand Inventory of Chemicals                      |
| EC50   | Effective Concentration                                 | NOAEL | No Observable Adverse Effect Level                      |
| EC50   | Effective Concentration 50%                             | NOEC  | No Observed Effect Concentration                        |
| EGEST  | EOSCA Generic Exposure Scenario Tool                    | OSHA  | Occupational Safety & Health Administration             |
| EOSCA  | European Oilfield Specialty Chemicals Association       | PEL   | Permissible Exposure Limit                              |
| EINECS | European Inventory of Existing Chemical Substances      | PICCS | Philippines Inventory of Commercial Chemical Substances |
| MAK    | Germany Maximum Concentration Values                    | PRNT  | Presumed Not Toxic                                      |
| GHS    | Globally Harmonized System                              | RCRA  | Resource Conservation Recovery Act                      |
| >=     | Greater Than or Equal To                                | STEL  | Short-term Exposure Limit                               |
| IC50   | Inhibition Concentration 50%                            | SARA  | Superfund Amendments and Reauthorization Act.           |
| IARC   | International Agency for Research on Cancer             | TLV   | Threshold Limit Value                                   |
| IECSC  | Inventory of Existing Chemical Substances in China      | TWA   | Time Weighted Average                                   |
| ENCS   | Japan, Inventory of Existing and                        | TSCA  | Toxic Substance Control Act                             |

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|      |                                    |       |                                                                                      |
|------|------------------------------------|-------|--------------------------------------------------------------------------------------|
|      | New Chemical Substances            |       |                                                                                      |
| KECI | Korea, Existing Chemical Inventory | UVCB  | Unknown or Variable Composition, Complex Reaction Products, and Biological Materials |
| <=   | Less Than or Equal To              | WHMIS | Workplace Hazardous Materials Information System                                     |
| LC50 | Lethal Concentration 50%           |       |                                                                                      |

**Full text of H-Statements referred to under sections 2 and 3.**

H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.

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**Annex****1. Short title of Exposure Scenario: Use as an intermediate**

|                                |   |                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Main User Groups               | : | <b>SU 3:</b> Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                     |
| Sector of use                  | : | <b>SU3, SU9:</b> Industrial Manufacturing (all), Manufacture of fine chemicals                                                                                                                                                                                                                                                                                                                                      |
| Process category               | : | <b>PROC1:</b> Use in closed process, no likelihood of exposure<br><b>PROC2:</b> Use in closed, continuous process with occasional controlled exposure<br><b>PROC3:</b> Use in closed batch process (synthesis or formulation)<br><b>PROC8b:</b> Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities<br><b>PROC15:</b> Use as laboratory reagent |
| Environmental release category | : | <b>ERC6a:</b> Industrial use resulting in manufacture of another substance (use of intermediates)                                                                                                                                                                                                                                                                                                                   |
| Further information            | : | Use as an isolated intermediate under strictly controlled conditions                                                                                                                                                                                                                                                                                                                                                |

**2.1 Contributing scenario controlling environmental exposure for:ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)****Technical conditions and measures / Organizational measures**

Remarks : Not applicable

**2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC8b, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Use as laboratory reagent****Amount used**

Remarks : Not applicable

**3. Exposure estimation and reference to its source**

Remarks: Not applicable

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**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

Not applicable