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

1.1

Product information

Product Name: AlphaPlus® 1-DODECENE
Material: 1087853, 1037008, 1015429, 1021778

EC-No. Registration number

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No. Index No.</th>
<th>Legal Entity Registration number</th>
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</thead>
<tbody>
<tr>
<td>1-Dodecene</td>
<td>112-41-4</td>
<td>203-968-4</td>
<td>Chevron Phillips Chemical Company LP</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>01-2119475509-26-0003</td>
</tr>
</tbody>
</table>

1.2

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

Relevant Identified Uses Supported: Manufacture
Use as an intermediate
Formulation
Use in coatings – industrial
Use in coatings – professional
Use in Coatings - Consumer
Use as a cleaning agent – industrial
Use as a cleaning agent – professional
Use as a cleaning agent – consumer
Use in Oil and Gas field drilling and production operations - Industrial
Use in Oil and Gas field drilling and production operations – Professional
Lubricants - Industrial
Lubricants - Professional
Lubricants - Consumer
Functional Fluids - Industrial
Functional Fluids - Professional
Use in polymer production – industrial

1.3

Details of the supplier of the safety data sheet

Company: Chevron Phillips Chemical Company LP

SDS Number: 100000068203
AlphaPlus® 1-DODECENE

Normal Alpha Olefins (NAO)
10001 Six Pines Drive
The Woodlands, TX 77380

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

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

1.4 Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)

Transport:
CHEMTREC 800.424.9300 or 703.527.3887 (int'l)
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090
EUROPE: BIG +32.14584545 (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
Argentina: +(54)-1159839431

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

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
REGULATION (EC) No 1272/2008

Aspiration hazard, Category 1
H304:
May be fatal if swallowed and enters airways.

2.2 Labeling (REGULATION (EC) No 1272/2008)

Hazard pictograms:

Signal Word: Danger

Hazard Statements: H304
May be fatal if swallowed and enters airways.

Precautionary Statements: Response
P301 + P310
IF SWALLOWED: Immediately call a
POISON CENTER/doctor.
P331 Do NOT induce vomiting.

Storage:
P405 Store locked up.

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

Hazardous ingredients which must be listed on the label:
- 112-41-4 1-Dodecene

SECTION 3: Composition/information on ingredients

3.1 - 3.2 Substance or Mixture

Synonyms:
- NAO 12
- Dodecene-1 (C12)
- C12H24

Molecular formula: C12H24

Hazardous ingredients:

<table>
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<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Classification (REGULATION (EC) No 1272/2008)</th>
<th>Concentration [wt%]</th>
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<tbody>
<tr>
<td>1-Dodecene</td>
<td>112-41-4</td>
<td>Asp. Tox. 1; H304</td>
<td>95 - 100</td>
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<td>203-968-4</td>
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For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice: Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

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

In case of skin contact: If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact: Flush eyes with water as a precaution. 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. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.
## SECTION 5: Firefighting measures

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
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<tbody>
<tr>
<td>Flash point</td>
<td>77 °C (171 °F)</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>225 °C (437 °F)</td>
</tr>
</tbody>
</table>

### 5.1 Extinguishing media

- **Suitable extinguishing media**: Carbon dioxide (CO2).
- **Unsuitable extinguishing media**: High volume water jet.

### 5.2 Special hazards arising from the substance or mixture

**Specific hazards during firefighting**: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

### 5.3 Advice for firefighters

- **Special protective equipment for fire-fighters**: Wear self-contained breathing apparatus for firefighting if necessary.
- **Further information**: For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
- **Fire and explosion protection**: Do not spray on an open flame or any other incandescent material. Keep away from open flames, hot surfaces and sources of ignition.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

- **Personal precautions**: Use personal protective equipment. Ensure adequate ventilation.

### 6.2 Environmental precautions

- **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.

### 6.3 Methods and materials for containment and cleaning up

- **Methods for cleaning up**: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

### 6.4 Reference to other sections

- **Reference to other sections**: For personal protection see section 8. For disposal
SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling

Advice on safe handling: Avoid formation of aerosol. Do not breathe vapors/dust. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion: Do not spray on an open flame or any other incandescent material. Keep away from open flames, hot surfaces and sources of ignition.

7.2 Conditions for safe storage, including any incompatibilities

Storage

Requirements for storage areas and containers: No smoking. Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>SE</th>
<th>Beståndsdelar</th>
<th>Grundvärd</th>
<th>Värde</th>
<th>Kontrollparametrar</th>
<th>Anmärkning</th>
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<tr>
<td>1-Dodecene</td>
<td>SE AFS</td>
<td>NGV</td>
<td>350 mg/m³</td>
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<td>V. 19.</td>
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<tr>
<td>1-Dodecene</td>
<td>SE AFS</td>
<td>KGV</td>
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<td>V. 19.</td>
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</table>

NO

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<th>Verdi</th>
<th>Kontrollparametra</th>
<th>Nota</th>
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<tr>
<td>1-Dodecene</td>
<td>FOR-2011-12-06-1358</td>
<td>GV</td>
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</table>

LT

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<th>Vertė</th>
<th>Kontrolės parametrai</th>
<th>Pastaba</th>
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<td>LT OEL</td>
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EE

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<th>Väärtus</th>
<th>Kontrollparameetrid</th>
<th>Märkused</th>
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</thead>
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<td>Piirnorm</td>
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<td>11. Aur</td>
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<tr>
<td>1-Dodecene</td>
<td>EE EEL</td>
<td>Lühiajalise kõvad piirnorm</td>
<td>500 mg/m³</td>
<td>11. Aur</td>
</tr>
</tbody>
</table>

Süsivesinike piirnormid on arvutatud auru faasile. Üle 12 süsinikuatomiga allfaassetel süsivesinikel (tridekaanid ja kõrgemad) on...
PNEC:
- Fresh water
  Value: 0,001 mg/l
- Sea water
  Value: 0,001 mg/l
- Fresh water sediment
  Value: 9,87 mg/kg
- Sea sediment
  Value: 9,87 mg/kg
- Soil
  Value: 1,97 mg/kg

8.2 Exposure controls

Engineering measures

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 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. 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: 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 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. 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: Flame-resistant clothing. Footwear protecting against chemicals.
**Hygiene measures**: When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

For additional details, see the Exposure Scenario in the Annex portion

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

**Appearance**

- **Form**: Liquid
- **Physical state**: Liquid
- **Color**: Clear, colorless

**Safety data**

- **Flash point**: 77 °C (171 °F)
- **Lower explosion limit**: 0,6 %(V)
- **Upper explosion limit**: 5,4 %(V)
- **Oxidizing properties**: no
- **Autoignition temperature**: 225 °C (437 °F)
- **Thermal decomposition**: No data available

**Molecular formula**: C12H24

**Molecular weight**: 168,36 g/mol

**pH**: Not applicable

**Freezing point**: -35 °C (-31 °F)

**Boiling point/boiling range**: 213 °C (415 °F)

**Vapor pressure**

- 19,30 Pa at 25 °C (77 °F)
- 0,35 kPa at 65 °C (149 °F)

**Relative density**

- 0,76 at 15,6 °C (60,1 °F)

**Density**

- 0,76 g/m3 at 20 °C (68 °F)
- 762 kg/m3 at 15 °C (59 °F)
- 736 kg/m3 at 50 °C (122 °F)
AlphaPlus® 1-DODECENE

Version 5.0

Revision Date 2019-06-24

Water solubility: Soluble in hydrocarbon solvents; insoluble in water.

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

Viscosity, kinematic: 0.68 cSt at 100 °C (212 °F)

Relative vapor density: 5.81 (Air = 1.0)

Evaporation rate: No data available

SECTION 10: Stability and reactivity

10.1 Reactivity: No decomposition if stored and applied as directed.

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

10.3 Possibility of hazardous reactions

Hazardous reactions: Further information: No decomposition if stored and applied as directed.

Hazardous reactions: Vapors may form explosive mixture with air.

10.4 Conditions to avoid: Heat, flames and sparks.

10.5 Materials to avoid: May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

10.6 Other data: No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

1-Dodecene: LD50: > 10,000 mg/kg
Species: Rat
Sex: male
Method: Fixed Dose Method
Information given is based on data obtained from similar substances.

**Acute inhalation toxicity**

1-Dodecene : Not classified due to data which are conclusive although insufficient for classification.

**Skin irritation**

1-Dodecene : No skin irritation

**Eye irritation**

1-Dodecene : No eye irritation
Information given is based on data obtained from similar substances.

**Sensitization**

1-Dodecene : Did not cause sensitization on laboratory animals.

**Repeated dose toxicity**

1-Dodecene : Species: Rat, Male and female
Sex: Male and female
Application Route: Oral diet
Dose: 0, 100, 500, 1000 mg/kg
Exposure time: 13 wk
Number of exposures: daily
NOEL: 1,000 mg/kg
Method: OCED Guideline 408
Information given is based on data obtained from similar substances.

1-Dodecene : Species: Rat, Male and female
Sex: Male and female
Application Route: Inhalation
Dose: 0, 300, 1000, 3000 ppm
Exposure time: 13 wk
Number of exposures: 6 hrs/d, 5 d/wk
NOEL: 3000 ppm
Method: OECD Guideline 413
Information given is based on data obtained from similar substances.

**Genotoxicity in vitro**

1-Dodecene : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: Chromosome aberration test in vitro  
Method: OECD Guideline 473  
Result: negative

Reproductive toxicity
1-Dodecene  
: Species: Rat  
: Sex: male  
Application Route: Oral diet  
: Dose: 0, 100, 500, or 1000 mg/kg  
Exposure time: 44 D  
Number of exposures: daily  
Method: OECD Guideline 421  
NOAEL Parent: 1.000 mg/kg  
NOAEL F1: 1.000 mg/kg

Species: Rat  
: Sex: female  
Application Route: Oral diet  
: Dose: 0, 100, 500, or 1000 mg/kg  
Exposure time: 41-55 D  
Number of exposures: daily  
Method: OECD Guideline 421  
NOAEL Parent: 1.000 mg/kg  
NOAEL F1: 1.000 mg/kg

Aspiration toxicity
1-Dodecene  
: May be fatal if swallowed and enters airways.

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

AlphaPlus® 1-DODECENE
Further information  
: Solvents may degrease the skin.

SECTION 12: Ecological information

12.1  
Toxicity

Toxicity to fish
1-Dodecene  
: No toxicity at the limit of solubility.

Toxicity to daphnia and other aquatic invertebrates
1-Dodecene  
: No toxicity at the limit of solubility.
Toxicity to algae

1-Dodecene : No toxicity at the limit of solubility.

12.2 Persistence and degradability

Biodegradability

1-Dodecene : 74,1 - 80 %
   Testing period: 28 d
   Method: OECD Test Guideline 301
   This material is expected to be readily biodegradable.

12.3 Bioaccumulative potential

Bioaccumulation

1-Dodecene : No data available

12.4 Mobility in soil

Mobility

1-Dodecene : No data available

12.5 Results of PBT and vPvB assessment

Results of PBT assessment

1-Dodecene : Non-classified PBT substance, Non-classified vPvB substance

12.6 Other adverse effects

Additional ecological information

Ecotoxicology Assessment

Short-term (acute) aquatic hazard

1-Dodecene : This material is not expected to be harmful to aquatic organisms.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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.
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**Version 5.0**

**Revision Date 2019-06-24**

| Product | : Do not dispose of waste into sewer. 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. Do not burn, or use a cutting torch on, the empty drum. |

For additional details, see the Exposure Scenario in the Annex portion

**SECTION 14: Transport information**

**14.1 - 14.7**

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)**

UN3295, HYDROCARBONS, LIQUID, N.O.S., COMBUSTIBLE LIQUID, III

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

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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

SDS Number:100000068203 12/154
**SECTION 15: Regulatory information**

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

National legislation


Water contaminating class : WGK 1 slightly water endangering

15.2 Chemical Safety Assessment

Components : dodec-1-ene A Chemical Safety Assessment has been carried out for this substance.

Major Accident Hazard Legislation :

- 96/82/EC Update: 2003 Directive 96/82/EC does not apply

**Notification status**

- Europe REACH : On the inventory, or in compliance with the inventory
- United States of America (USA) TSCA : On the inventory, or in compliance with the inventory
- Canada DSL : On the inventory, or in compliance with the inventory
- 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

**SECTION 16: Other information**

**NFPA Classification** : Health Hazard: 0

- Fire Hazard: 2
- Reactivity Hazard: 0

Further information

Legacy SDS Number : PE0019

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.

<table>
<thead>
<tr>
<th>Key or legend to abbreviations and acronyms used in the safety data sheet</th>
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<tbody>
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<td>ACGIH</td>
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<td>WHMIS</td>
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Full text of H-Statements referred to under sections 2 and 3.

H304 May be fatal if swallowed and enters airways.
## Annex
### Exposure Scenario

<table>
<thead>
<tr>
<th>Number</th>
<th>Title</th>
</tr>
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<tbody>
<tr>
<td>ES1</td>
<td>Manufacture (M); Industrial uses (SU3).</td>
</tr>
<tr>
<td>ES2</td>
<td>Use as an intermediate; Industrial uses (SU3).</td>
</tr>
<tr>
<td>ES3</td>
<td>Formulation; Industrial uses (SU3).</td>
</tr>
<tr>
<td>ES4</td>
<td>Use in coatings – industrial; Industrial uses (SU3).</td>
</tr>
<tr>
<td>ES5</td>
<td>Use in coatings – professional; Professional uses (SU22).</td>
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<tr>
<td>ES6</td>
<td>Use in Coatings - Consumer; Consumer uses (SU21).</td>
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<td>ES7</td>
<td>Use as a cleaning agent – industrial; Industrial uses (SU3).</td>
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<td>ES8</td>
<td>Use as a cleaning agent – professional; Professional uses (SU22).</td>
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<tr>
<td>ES9</td>
<td>Use as a cleaning agent – consumer; Consumer uses (SU21).</td>
</tr>
<tr>
<td>ES10</td>
<td>Use in Oil and Gas field drilling and production operations - Industrial; Industrial uses (SU3).</td>
</tr>
<tr>
<td>ES11</td>
<td>Use in Oil and Gas field drilling and production operations – Professional; Professional uses (SU22).</td>
</tr>
<tr>
<td>ES12</td>
<td>Lubricants - Industrial; Industrial uses (SU3).</td>
</tr>
<tr>
<td>ES13</td>
<td>Lubricants - Professional; Professional uses (SU22).</td>
</tr>
<tr>
<td>ES14</td>
<td>Lubricants - Consumer; Consumer uses (SU21).</td>
</tr>
<tr>
<td>ES15</td>
<td>Functional Fluids - Industrial; Industrial uses (SU3).</td>
</tr>
<tr>
<td>ES16</td>
<td>Functional Fluids - Professional; Professional uses (SU22).</td>
</tr>
<tr>
<td>ES17</td>
<td>Use in polymer production – industrial; Industrial uses (SU3).</td>
</tr>
</tbody>
</table>
ES1: ; Manufacture (M); Industrial uses (SU3).

1.1. Title section

<table>
<thead>
<tr>
<th>Exposure Scenario name</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacture</td>
<td>dodec-1-ene</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Structured Short Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>; Manufacture (M); Industrial uses (SU3).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC-No.: 203-968-4</td>
</tr>
</tbody>
</table>

Environment

CS1 Manufacture ERC1, ERC4

Worker

CS2 General measures applicable to all activities, General measures (skin irritants) PROC1
CS3 General measures applicable to all activities, General measures (skin irritants) PROC2
CS4 General measures applicable to all activities, General measures (skin irritants) PROC3
CS5 General measures applicable to all activities, General measures (skin irritants) PROC4
CS6 General measures applicable to all activities, General measures (skin irritants) PROC8a
CS7 General measures applicable to all activities, General measures (skin irritants) PROC8b
CS8 General measures applicable to all activities, General measures (skin irritants) PROC15

1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: Manufacture of substances (ERC1) / Industrial use of processing aids in processes and products, not becoming part of articles (ERC4)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Maximum allowable site tonnage (MSafe)</th>
<th>Release type</th>
<th>Emission days</th>
</tr>
</thead>
<tbody>
<tr>
<td>213.676 kg/day</td>
<td>Continuous release</td>
<td>300</td>
</tr>
</tbody>
</table>

Technical and organisational conditions and measures

SDS Number:100000068203 17/154
Risk from environmental exposure is driven by freshwater sediment.
Air - minimum efficiency of 90 %
Water - minimum efficiency of 96.4 %

### Conditions and measures related to sewage treatment plant

<table>
<thead>
<tr>
<th>STP type</th>
<th>Municipal sewage treatment plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>STP sludge treatment</td>
<td>Prevent discharge of undissolved substance to or recover from wastewater. Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.</td>
</tr>
<tr>
<td>STP effluent</td>
<td>2.000 m³/d</td>
</tr>
</tbody>
</table>

### Conditions and measures related to treatment of waste (including article waste)

| Waste treatment | External treatment and disposal of waste should comply with applicable local and/or national regulations. |

### Other conditions affecting environmental exposure

- **Receiving surface water flow**: 18,000 m³/d
- **Local freshwater dilution factor**: 40
- **Local marine water dilution factor**: 100

### 1.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

### Product (article) characteristics

- **Covers percentage substance in the product up to 100 %**.
- **Physical form of product**: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

- **Duration**: Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures

- Do not ingest. If swallowed then seek immediate medical assistance.
- Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
- No other specific measures identified.

### Other conditions affecting workers exposure

- **Temperature**: Assumes use at not more than 20°C above ambient temperature.
### Product (article) characteristics
Covers percentage substance in the product up to 100%.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

### Amount used, frequency and duration of use (or from service life)
Duration: Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure
Temperature: Assumes use at not more than 20°C above ambient temperature.

### 1.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

#### Product (article) characteristics
Covers percentage substance in the product up to 100%.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

#### Amount used, frequency and duration of use (or from service life)
Duration: Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure
Temperature: Assumes use at not more than 20°C above ambient
### 1.2.5. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

**Product (article) characteristics**

Covers percentage substance in the product up to 100%.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

**Amount used, frequency and duration of use (or from service life)**

| Duration | Covers daily exposures up to 8 hours |

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

### 1.2.6. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

**Product (article) characteristics**

Covers percentage substance in the product up to 100%.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

**Amount used, frequency and duration of use (or from service life)**

| Duration | Covers daily exposures up to 8 hours |

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**
**AlphaPlus® 1-DODECENE**

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Revision Date 2019-06-24

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

### 1.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

#### Product (article) characteristics

Covers percentage substance in the product up to 100%.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

#### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>

#### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

#### Other conditions affecting workers exposure

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

### 1.2.8. Control of worker exposure: Use as laboratory reagent (PROC15)

#### Product (article) characteristics

Covers percentage substance in the product up to 100%.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

#### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>

#### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

#### Other conditions affecting workers exposure
1.3. Exposure estimation and reference to its source

1.3.1. Environmental release and exposure: Manufacture of substances (ERC1) / Industrial use of processing aids in processes and products, not becoming part of articles (ERC4)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Exposure level</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater</td>
<td>0,280 µg/l (EUSES)</td>
<td>0,3</td>
</tr>
<tr>
<td>Sea water</td>
<td>0,105 µg/l (EUSES)</td>
<td>0,117</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0,669 mg/kg wet weight (EUSES)</td>
<td>0,312</td>
</tr>
<tr>
<td>Sea sediment</td>
<td>0,251 mg/kg wet weight (EUSES)</td>
<td>0,117</td>
</tr>
<tr>
<td>Soil</td>
<td>0,0048 mg/kg wet weight (EUSES)</td>
<td>0,003</td>
</tr>
<tr>
<td>Air</td>
<td>0,0019 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Additional information on exposure estimation

Common practices vary across sites thus conservative process release estimates used.

1.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

1.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

1.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

1.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Additional information on exposure estimation

A quantitative risk assessment is not required for human health.
### 1.3.6. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

### 1.3.7. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

### 1.3.8. Worker exposure: Use as laboratory reagent (PROC15)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

### 1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
ES2: ; Use as an intermediate; Industrial uses (SU3).

2.1. Title section

<table>
<thead>
<tr>
<th>Exposure Scenario name</th>
<th>Use as an intermediate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured Short Title</td>
<td>; Use as an intermediate; Industrial uses (SU3).</td>
</tr>
<tr>
<td>Substance</td>
<td>dodec-1-ene</td>
</tr>
<tr>
<td></td>
<td>EC-No.: 203-968-4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS1</td>
</tr>
<tr>
<td>Use as an intermediate</td>
</tr>
<tr>
<td>ERC6a</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Worker</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS2</td>
</tr>
<tr>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td>PROC1</td>
</tr>
<tr>
<td>CS3</td>
</tr>
<tr>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td>PROC2</td>
</tr>
<tr>
<td>CS4</td>
</tr>
<tr>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td>PROC3</td>
</tr>
<tr>
<td>CS5</td>
</tr>
<tr>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td>PROC4</td>
</tr>
<tr>
<td>CS6</td>
</tr>
<tr>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td>PROC8a</td>
</tr>
<tr>
<td>CS7</td>
</tr>
<tr>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td>PROC8b</td>
</tr>
<tr>
<td>CS8</td>
</tr>
<tr>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td>PROC15</td>
</tr>
</tbody>
</table>

2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: Use of intermediate (ERC6a)

<table>
<thead>
<tr>
<th>Product (article) characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covers percentage substance in the product up to 100 %.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount used, frequency and duration of use (or from service life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum allowable site tonnage (MSafe)</td>
</tr>
<tr>
<td>43.975 kg/day</td>
</tr>
<tr>
<td>Release type</td>
</tr>
<tr>
<td>Continuous release</td>
</tr>
<tr>
<td>Emission days</td>
</tr>
<tr>
<td>300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical and organisational conditions and measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk from environmental exposure is driven by soil.</td>
</tr>
</tbody>
</table>

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Version 5.0

Revision Date 2019-06-24

Air - minimum efficiency of 80 %
Water - minimum efficiency of 96,4 %

Conditions and measures related to sewage treatment plant

- STP type: Municipal sewage treatment plant
- STP sludge treatment: Prevent discharge of undissolved substance to or recover from wastewater. Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
- STP effluent: 2.000 m3/d

Conditions and measures related to treatment of waste (including article waste)

- Waste treatment: External treatment and disposal of waste should comply with applicable local and/or national regulations.

Other conditions affecting environmental exposure

- Receiving surface water flow: 18.000 m3/d
- Local freshwater dilution factor: 10
- Local marine water dilution factor: 100

2.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics

- Covers percentage substance in the product up to 100 %.
- Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

- Duration: Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

- Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

- Temperature: Assumes use at not more than 20°C above ambient temperature.
### 2.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

**Product (article) characteristics**

Covers percentage substance in the product up to 100 %.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

**Amount used, frequency and duration of use (or from service life)**

Duration: Covers daily exposures up to 8 hours

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**

Temperature: Assumes use at not more than 20°C above ambient temperature.

### 2.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

**Product (article) characteristics**

Covers percentage substance in the product up to 100 %.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

**Amount used, frequency and duration of use (or from service life)**

Duration: Covers daily exposures up to 8 hours

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**

Temperature: Assumes use at not more than 20°C above ambient temperature.
2.2.5. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics
Covers percentage substance in the product up to 100%.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)
Duration: Covers daily exposures up to 8 hours

Technical and organisational conditions and measures
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

2.2.6. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Product (article) characteristics
Covers percentage substance in the product up to 100%.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)
Duration: Covers daily exposures up to 8 hours

Technical and organisational conditions and measures
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure
2.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

**Product (article) characteristics**

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

**Amount used, frequency and duration of use (or from service life)**

Duration : Covers daily exposures up to 8 hours

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**

Temperature : Assumes use at not more than 20°C above ambient temperature.

2.2.8. Control of worker exposure: Use as laboratory reagent (PROC15)

**Product (article) characteristics**

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

**Amount used, frequency and duration of use (or from service life)**

Duration : Covers daily exposures up to 8 hours

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**

Temperature : Assumes use at not more than 20°C above ambient temperature.
2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure: Use of intermediate (ERC6a)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Exposure level</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater</td>
<td>0,538 µg/l (EUSES)</td>
<td>0,597</td>
</tr>
<tr>
<td>Sea water</td>
<td>0,0536 µg/l (EUSES)</td>
<td>0,060</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>1,29 mg/kg wet weight (EUSES)</td>
<td>0,599</td>
</tr>
<tr>
<td>Sea sediment</td>
<td>0,128 mg/kg wet weight (EUSES)</td>
<td>0,060</td>
</tr>
<tr>
<td>Soil</td>
<td>1,32 mg/kg wet weight (EUSES)</td>
<td>0,758</td>
</tr>
<tr>
<td>Air</td>
<td>0,185 µg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Additional information on exposure estimation

Common practices vary across sites thus conservative process release estimates used.

2.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

2.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

2.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

2.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Additional information on exposure estimation

A quantitative risk assessment is not required for human health.
### 2.3.6. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

### 2.3.7. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

### 2.3.8. Worker exposure: Use as laboratory reagent (PROC15)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

### 2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

- Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
- Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
- Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
### 3.1. Title section

<table>
<thead>
<tr>
<th>Exposure Scenario name</th>
<th>Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured Short Title</td>
<td>Formulation; Industrial uses (SU3).</td>
</tr>
<tr>
<td>Substance</td>
<td>dodec-1-ene</td>
</tr>
<tr>
<td></td>
<td>EC-No.: 203-968-4</td>
</tr>
</tbody>
</table>

### Environment

<table>
<thead>
<tr>
<th>CS1</th>
<th>Formulation</th>
</tr>
</thead>
</table>

### Worker

<table>
<thead>
<tr>
<th>CS2</th>
<th>General measures applicable to all activities, General measures (skin irritants)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PROC1</td>
</tr>
<tr>
<td>CS3</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC2</td>
</tr>
<tr>
<td>CS4</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC3</td>
</tr>
<tr>
<td>CS5</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC4</td>
</tr>
<tr>
<td>CS6</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC5</td>
</tr>
<tr>
<td>CS7</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC8a</td>
</tr>
<tr>
<td>CS8</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC8b</td>
</tr>
<tr>
<td>CS9</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC9</td>
</tr>
<tr>
<td>CS10</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC14</td>
</tr>
<tr>
<td>CS11</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC15</td>
</tr>
</tbody>
</table>

### 3.2. Conditions of use affecting exposure

#### 3.2.1. Control of environmental exposure: Formulation into mixture (ERC2)

<table>
<thead>
<tr>
<th>Product (article) characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covers percentage substance in the product up to 100 %.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount used, frequency and duration of use (or from service life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum allowable site tonnage : 74.906 kg/day</td>
</tr>
</tbody>
</table>
### Technical and organisational conditions and measures

**Release type:** Continuous release  
**Emission days:** 300

### Conditions and measures related to sewage treatment plant

- **STP type:** Municipal sewage treatment plant  
- **STP sludge treatment:** Prevent discharge of undissolved substance to or recover from wastewater.  
  Do not apply industrial sludge to natural soils.  
  Sewage sludge should be incinerated, contained or reclaimed.  
- **STP effluent:** 2,000 m³/d

### Conditions and measures related to treatment of waste (including article waste)

- **Waste treatment:** External treatment and disposal of waste should comply with applicable local and/or national regulations.

### Other conditions affecting environmental exposure

- **Receiving surface water flow:** 18,000 m³/d  
- **Local freshwater dilution factor:** 10  
- **Local marine water dilution factor:** 100

### 3.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

### Product (article) characteristics

- **Covers percentage substance in the product up to 100%:**
- **Physical form of product:** Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

- **Duration:** Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures

- **Do not ingest.** If swallowed then seek immediate medical assistance.  
- **Avoid direct skin contact with product.** Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.  
- **No other specific measures identified.**
### Other conditions affecting workers exposure

| Temperature : | Assumes use at not more than 20°C above ambient temperature. |

#### 3.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

#### Product (article) characteristics

| Covers percentage substance in the product up to 100 %. |
| Physical form of product : | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

#### Amount used, frequency and duration of use (or from service life)

| Duration : | Covers daily exposures up to 8 hours |

#### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

| Temperature : | Assumes use at not more than 20°C above ambient temperature. |

#### 3.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

#### Product (article) characteristics

| Covers percentage substance in the product up to 100 %. |
| Physical form of product : | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

#### Amount used, frequency and duration of use (or from service life)

| Duration : | Covers daily exposures up to 8 hours |

#### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
### 3.2.5. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

**Product (article) characteristics**

<table>
<thead>
<tr>
<th>Cov</th>
<th>Covers percentage substance in the product up to 100 %.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phys</td>
<td>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</td>
</tr>
</tbody>
</table>

**Amount used, frequency and duration of use (or from service life)**

| Duration | Covers daily exposures up to 8 hours |

**Technical and organisational conditions and measures**

- Do not ingest. If swallowed then seek immediate medical assistance.
- Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
- No other specific measures identified.

**Other conditions affecting workers exposure**

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

### 3.2.6. Control of worker exposure: Mixing or blending in batch processes (PROC5)

**Product (article) characteristics**

<table>
<thead>
<tr>
<th>Cov</th>
<th>Covers percentage substance in the product up to 100 %.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phys</td>
<td>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</td>
</tr>
</tbody>
</table>

**Amount used, frequency and duration of use (or from service life)**

| Duration | Covers daily exposures up to 8 hours |

**Technical and organisational conditions and measures**

- Do not ingest. If swallowed then seek immediate medical assistance.
- Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
- No other specific measures identified.
### Other conditions affecting workers exposure

**Temperature**
- Assumed use at not more than 20°C above ambient temperature.

### 3.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

#### Product (article) characteristics
- Covers percentage substance in the product up to 100%.
- Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure.

#### Amount used, frequency and duration of use (or from service life)
- Duration: Covers daily exposures up to 8 hours.

#### Technical and organisational conditions and measures
- Do not ingest. If swallowed then seek immediate medical assistance.
- Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
- No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature**
- Assumed use at not more than 20°C above ambient temperature.

### 3.2.8. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

#### Product (article) characteristics
- Covers percentage substance in the product up to 100%.
- Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure.

#### Amount used, frequency and duration of use (or from service life)
- Duration: Covers daily exposures up to 8 hours.

#### Technical and organisational conditions and measures
- Do not ingest. If swallowed then seek immediate medical assistance.
- Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
- No other specific measures identified.
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#### 3.2.9. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

**Product (article) characteristics**

| Covers percentage substance in the product up to 100 %.
| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

---

#### 3.2.10. Control of worker exposure: Tabletting, compression, extrusion, pelettisation, granulation (PROC14)

**Product (article) characteristics**

| Covers percentage substance in the product up to 100 %.
| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

---

#### Other conditions affecting workers exposure

**Temperature**

Assumes use at not more than 20°C above ambient temperature.

---

#### Other conditions affecting workers exposure

**Temperature**

Assumes use at not more than 20°C above ambient temperature.

---

### Notes

Do not ingest. If swallowed then seek immediate medical assistance.

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

No other specific measures identified.

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| (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified. |

### Other conditions affecting workers exposure

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

### 3.2.11. Control of worker exposure: Use as laboratory reagent (PROC15)

#### Product (article) characteristics

- Covers percentage substance in the product up to 100 %.
- Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

#### Amount used, frequency and duration of use (or from service life)

- Duration: Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

### 3.3. Exposure estimation and reference to its source

#### 3.3.1. Environmental release and exposure: Formulation into mixture (ERC2)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Exposure level</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater</td>
<td>0,177 µg/l (EUSES)</td>
<td>0,196</td>
</tr>
<tr>
<td>Sea water</td>
<td>0,0175 µg/l (EUSES)</td>
<td>0,019</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0,422 mg/kg wet weight (EUSES)</td>
<td>0,197</td>
</tr>
<tr>
<td>Sea sediment</td>
<td>0,0418 mg/kg wet weight (EUSES)</td>
<td>0,020</td>
</tr>
<tr>
<td>Soil</td>
<td>0,465 mg/kg wet weight (EUSES)</td>
<td>0,267</td>
</tr>
<tr>
<td>Air</td>
<td>0,0278 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

### Additional information on exposure estimation

SDS Number:100000068203 37/154
Common practices vary across sites thus conservative process release estimates used.

### 3.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

<table>
<thead>
<tr>
<th>Additional information on exposure estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A quantitative risk assessment is not required for human health.</td>
</tr>
</tbody>
</table>

### 3.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

<table>
<thead>
<tr>
<th>Additional information on exposure estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A quantitative risk assessment is not required for human health.</td>
</tr>
</tbody>
</table>

### 3.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

<table>
<thead>
<tr>
<th>Additional information on exposure estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A quantitative risk assessment is not required for human health.</td>
</tr>
</tbody>
</table>

### 3.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

<table>
<thead>
<tr>
<th>Additional information on exposure estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A quantitative risk assessment is not required for human health.</td>
</tr>
</tbody>
</table>

### 3.3.6. Worker exposure: Mixing or blending in batch processes (PROC5)

<table>
<thead>
<tr>
<th>Additional information on exposure estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A quantitative risk assessment is not required for human health.</td>
</tr>
</tbody>
</table>

### 3.3.7. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

<table>
<thead>
<tr>
<th>Additional information on exposure estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A quantitative risk assessment is not required for human health.</td>
</tr>
</tbody>
</table>

### 3.3.8. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

<table>
<thead>
<tr>
<th>Additional information on exposure estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A quantitative risk assessment is not required for human health.</td>
</tr>
</tbody>
</table>
3.3.9. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

3.3.10. Worker exposure: Tabletting, compression, extrusion, pelettisation, granulation (PROC14)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

3.3.11. Worker exposure: Use as laboratory reagent (PROC15)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

3.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
ES4: Use in coatings – industrial; Industrial uses (SU3).

4.1. Title section

**Exposure Scenario name:** Use in coatings – industrial

**Structured Short Title:** Use in coatings – industrial; Industrial uses (SU3).

**Substance:** dodec-1-ene

**EC No.:** 203-968-4

<table>
<thead>
<tr>
<th>Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Worker</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS2</td>
</tr>
<tr>
<td>CS3</td>
</tr>
<tr>
<td>CS4</td>
</tr>
<tr>
<td>CS5</td>
</tr>
<tr>
<td>CS6</td>
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<tr>
<td>CS7</td>
</tr>
<tr>
<td>CS8</td>
</tr>
<tr>
<td>CS9</td>
</tr>
<tr>
<td>CS10</td>
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<tr>
<td>CS11</td>
</tr>
<tr>
<td>CS12</td>
</tr>
<tr>
<td>CS13</td>
</tr>
<tr>
<td>CS14</td>
</tr>
</tbody>
</table>

4.2. Conditions of use affecting exposure

4.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)
# SAFETY DATA SHEET

## AlphaPlus® 1-DODECENE

<table>
<thead>
<tr>
<th>Version 5.0</th>
<th>Revision Date 2019-06-24</th>
</tr>
</thead>
</table>

## Product (article) characteristics
Covers percentage substance in the product up to 100 %.

## Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Maximum allowable site tonnage (MSafe)</th>
<th>11.905 kg/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release type</td>
<td>Continuous release</td>
</tr>
<tr>
<td>Emission days</td>
<td>300</td>
</tr>
</tbody>
</table>

## Technical and organisational conditions and measures

Risk from environmental exposure is driven by soil.
- **Air** - minimum efficiency of 90 %
- **Water** - minimum efficiency of 96.4 %

### Conditions and measures related to sewage treatment plant

- **STP type** : Municipal sewage treatment plant
- **STP sludge treatment** : Prevent discharge of undissolved substance to or recover from wastewater. Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
- **STP effluent** : 2.000 m³/d

### Conditions and measures related to treatment of waste (including article waste)

- **Waste treatment** : External treatment and disposal of waste should comply with applicable local and/or national regulations.

## Other conditions affecting environmental exposure

- **Receiving surface water flow** : 18.000 m³/d
- **Local freshwater dilution factor** : 10
- **Local marine water dilution factor** : 100

### 4.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

## Product (article) characteristics
Covers percentage substance in the product up to 100 %.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

## Amount used, frequency and duration of use (or from service life)

| Duration | Covers daily exposures up to 8 hours |

## Technical and organisational conditions and measures

| SDS Number:100000068203 | 41/154 |
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature**

Assumes use at not more than 20°C above ambient temperature.

#### 4.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

**Product (article) characteristics**

Covers percentage substance in the product up to 100 %.

**Physical form of product**

Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

**Amount used, frequency and duration of use (or from service life)**

**Duration**

Covers daily exposures up to 8 hours

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature**

Assumes use at not more than 20°C above ambient temperature.

#### 4.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

**Product (article) characteristics**

Covers percentage substance in the product up to 100 %.

**Physical form of product**

Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

**Amount used, frequency and duration of use (or from service life)**

**Duration**

Covers daily exposures up to 8 hours
# AlphaPlus® 1-DODECENE

## Version 5.0

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### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

### 4.2.5. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

**Product (article) characteristics**

Covers percentage substance in the product up to 100%.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

### 4.2.6. Control of worker exposure: Mixing or blending in batch processes (PROC5)

**Product (article) characteristics**

Covers percentage substance in the product up to 100%.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>
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Version 5.0

Revision Date 2019-06-24

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

### 4.2.7. Control of worker exposure: Industrial spraying (PROC7)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

### 4.2.8. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

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### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

#### 4.2.9. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

#### 4.2.10. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>
### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature**

Assumes use at not more than 20°C above ambient temperature.

### 4.2.11. Control of worker exposure: Roller application or brushing (PROC10)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

**Physical form of product**: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

#### Amount used, frequency and duration of use (or from service life)

**Duration**: Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature**

Assumes use at not more than 20°C above ambient temperature.

### 4.2.12. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

**Physical form of product**: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

#### Amount used, frequency and duration of use (or from service life)

**Duration**: Covers daily exposures up to 8 hours
**AlphaPlus® 1-DODECENE**

**Version 5.0**

**Revision Date 2019-06-24**

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

#### 4.2.13. Control of worker exposure: Tableting, compression, extrusion, pelettisation, granulation (PROC14)

### Product (article) characteristics

Covers percentage substance in the product up to 100%.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

#### 4.2.14. Control of worker exposure: Use as laboratory reagent (PROC15)

### Product (article) characteristics

Covers percentage substance in the product up to 100%.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>

SDS Number: 100000068203 47/154
Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

4.3. Exposure estimation and reference to its source

4.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Exposure level</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater</td>
<td>0.0388 µg/l (EUSES)</td>
<td>0.043</td>
</tr>
<tr>
<td>Sea water</td>
<td>0.0369 µg/l (EUSES)</td>
<td>0.004</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0.0928 mg/kg wet weight (EUSES)</td>
<td>0.043</td>
</tr>
<tr>
<td>Sea sediment</td>
<td>0.0088 mg/kg wet weight (EUSES)</td>
<td>0.004</td>
</tr>
<tr>
<td>Soil</td>
<td>0.0804 mg/kg wet weight (EUSES)</td>
<td>0.046</td>
</tr>
<tr>
<td>Air</td>
<td>0.0149 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Additional information on exposure estimation

Common practices vary across sites thus conservative process release estimates used.

4.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

4.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Additional information on exposure estimation

A quantitative risk assessment is not required for human health.
4.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

4.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

4.3.6. Worker exposure: Mixing or blending in batch processes (PROC5)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

4.3.7. Worker exposure: Industrial spraying (PROC7)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

4.3.8. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

4.3.9. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

4.3.10. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

4.3.11. Worker exposure: Roller application or brushing (PROC10)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.
4.3.12. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

4.3.13. Worker exposure: Tabletting, compression, extrusion, pelettisation, granulation (PROC14)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

4.3.14. Worker exposure: Use as laboratory reagent (PROC15)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

4.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
ES5: Use in coatings – professional; Professional uses (SU22).

5.1. Title section

<table>
<thead>
<tr>
<th>Exposure Scenario name</th>
<th>Use in coatings – professional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured Short Title</td>
<td>; Use in coatings – professional; Professional uses (SU22).</td>
</tr>
<tr>
<td>Substance</td>
<td>dodec-1-ene EC-No.: 203-968-4</td>
</tr>
</tbody>
</table>

5.2. Conditions of use affecting exposure

5.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)
### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Maximum allowable site tonnage (MSafe)</th>
<th>25 kg/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release type</td>
<td>Wide dispersive use</td>
</tr>
<tr>
<td>Emission days</td>
<td>300</td>
</tr>
</tbody>
</table>

### Technical and organisational conditions and measures

Risk from environmental exposure is driven by freshwater sediment.
Air - minimum efficiency of 0 %
Water - minimum efficiency of 96.4 %

#### Conditions and measures related to sewage treatment plant

<table>
<thead>
<tr>
<th>STP type</th>
<th>Municipal sewage treatment plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>STP sludge treatment</td>
<td>Prevent discharge of undissolved substance to or recover from wastewater.</td>
</tr>
<tr>
<td></td>
<td>Do not apply industrial sludge to natural soils.</td>
</tr>
<tr>
<td></td>
<td>Sewage sludge should be incinerated, contained or reclaimed.</td>
</tr>
<tr>
<td>STP effluent</td>
<td>2.000 m3/d</td>
</tr>
</tbody>
</table>

#### Conditions and measures related to treatment of waste (including article waste)

| Waste treatment                   | External treatment and disposal of waste should comply with applicable local and/or national regulations. |

#### Other conditions affecting environmental exposure

<table>
<thead>
<tr>
<th>Receiving surface water flow</th>
<th>18.000 m3/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local freshwater dilution factor</td>
<td>10</td>
</tr>
<tr>
<td>Local marine water dilution factor</td>
<td>100</td>
</tr>
</tbody>
</table>

5.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

**Physical form of product**

| Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

### Amount used, frequency and duration of use (or from service life)

| Duration | Covers daily exposures up to 8 hours |

### Technical and organisational conditions and measures
**SAFETY DATA SHEET**

**AlphaPlus® 1-DODECENE**

Version 5.0

**Revision Date** 2019-06-24

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Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

---

**5.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)**

**Product (article) characteristics**

Covers percentage substance in the product up to 100 %.

**Physical form of product**

Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

**Amount used, frequency and duration of use (or from service life)**

**Duration**

Covers daily exposures up to 8 hours

---

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

---

**5.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

**Product (article) characteristics**

Covers percentage substance in the product up to 100 %.

**Physical form of product**

Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

**Amount used, frequency and duration of use (or from service life)**

**Duration**

Covers daily exposures up to 8 hours
**AlphaPlus® 1-DODECENE**

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Technical and organisational conditions and measures

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.</td>
<td></td>
</tr>
</tbody>
</table>

Other conditions affecting workers exposure

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>Assumes use at not more than 20°C above ambient temperature.</td>
</tr>
</tbody>
</table>

5.2.5. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covers percentage substance in the product up to 100 %.</td>
<td></td>
</tr>
</tbody>
</table>

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>Covers daily exposures up to 8 hours</td>
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</tbody>
</table>

Technical and organisational conditions and measures

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.</td>
<td></td>
</tr>
</tbody>
</table>

Other conditions affecting workers exposure

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>Assumes use at not more than 20°C above ambient temperature.</td>
</tr>
</tbody>
</table>

5.2.6. Control of worker exposure: Mixing or blending in batch processes (PROC5)

Product (article) characteristics

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covers percentage substance in the product up to 100 %.</td>
<td></td>
</tr>
</tbody>
</table>

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>Covers daily exposures up to 8 hours</td>
</tr>
</tbody>
</table>

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### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

### 5.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

### 5.2.8. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours
Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

5.2.9. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

5.2.10. Control of worker exposure: Non-industrial spraying (PROC11)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

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# Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

## Other conditions affecting workers exposure

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<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

### 5.2.11. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

<table>
<thead>
<tr>
<th>Product (article) characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covers percentage substance in the product up to 100 %.</td>
</tr>
<tr>
<td>Physical form of product</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount used, frequency and duration of use (or from service life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
</tr>
</tbody>
</table>

## Technical and organisational conditions and measures

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## Other conditions affecting workers exposure

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

### 5.2.12. Control of worker exposure: Use as laboratory reagent (PROC15)

<table>
<thead>
<tr>
<th>Product (article) characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covers percentage substance in the product up to 100 %.</td>
</tr>
<tr>
<td>Physical form of product</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount used, frequency and duration of use (or from service life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
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</tbody>
</table>
AlphaPlus® 1-DODECENE

Version 5.0
Revision Date 2019-06-24

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

5.2.13. Control of worker exposure: Manual activities involving hand contact (PROC19)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

5.3. Exposure estimation and reference to its source

5.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Exposure level</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater</td>
<td>0,0388 µg/l (EUSES)</td>
<td>0,043</td>
</tr>
<tr>
<td>Sea water</td>
<td>0,0037 µg/l (EUSES)</td>
<td>0,004</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0,0928 mg/kg wet weight (EUSES)</td>
<td>0,043</td>
</tr>
</tbody>
</table>

SDS Number:1000000068203  58/154
Sea sediment: 0.0088 mg/kg wet weight (EUSES) 0.004
Soil: 0.0441 mg/kg wet weight (EUSES) 0.025
Air: 0.298 µg/m³

 Additional information on exposure estimation
Common practices vary across sites thus conservative process release estimates used.

5.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

 A quantitative risk assessment is not required for human health.

5.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

 A quantitative risk assessment is not required for human health.

5.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

 A quantitative risk assessment is not required for human health.

5.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

 A quantitative risk assessment is not required for human health.

5.3.6. Worker exposure: Mixing or blending in batch processes (PROC5)

 A quantitative risk assessment is not required for human health.

5.3.7. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

 A quantitative risk assessment is not required for human health.
5.3.8. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

**Additional information on exposure estimation**
A quantitative risk assessment is not required for human health.

5.3.9. Worker exposure: Roller application or brushing (PROC10)

**Additional information on exposure estimation**
A quantitative risk assessment is not required for human health.

5.3.10. Worker exposure: Non-industrial spraying (PROC11)

**Additional information on exposure estimation**
A quantitative risk assessment is not required for human health.

5.3.11. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

**Additional information on exposure estimation**
A quantitative risk assessment is not required for human health.

5.3.12. Worker exposure: Use as laboratory reagent (PROC15)

**Additional information on exposure estimation**
A quantitative risk assessment is not required for human health.

5.3.13. Worker exposure: Manual activities involving hand contact (PROC19)

**Additional information on exposure estimation**
A quantitative risk assessment is not required for human health.

5.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
**AlphaPlus® 1-DODECENE**

**SAFETY DATA SHEET**

**Version 5.0**

**Revision Date** 2019-06-24

**ES6**: Use in Coatings - Consumer; Consumer uses (SU21).

### 6.1. Title section

<table>
<thead>
<tr>
<th>Exposure Scenario name</th>
<th>Use in Coatings - Consumer</th>
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<tbody>
<tr>
<td>Structured Short Title</td>
<td>; Use in Coatings - Consumer; Consumer uses (SU21).</td>
</tr>
<tr>
<td>Substance</td>
<td>dodec-1-ene</td>
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<tr>
<td>EC-No.</td>
<td>203-968-4</td>
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### Environment

<table>
<thead>
<tr>
<th>CS1</th>
<th>Use in Coatings - Consumer</th>
</tr>
</thead>
</table>

### Consumer

<table>
<thead>
<tr>
<th>CS2</th>
<th>General measures applicable to all activities, General measures (skin irritants)</th>
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</thead>
<tbody>
<tr>
<td>CS3</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td>CS4</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
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<tr>
<td>CS5</td>
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<td>CS6</td>
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<td>CS7</td>
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<td>CS9</td>
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<td>CS10</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td>CS11</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
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<tr>
<td>CS12</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td>CS13</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
</tbody>
</table>

### 6.2. Conditions of use affecting exposure

6.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)
## Product (article) characteristics

Covers percentage substance in the product up to 100%.

### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Maximum allowable site tonnage (MSafe)</th>
<th>23 kg/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release type</td>
<td>Wide dispersive use</td>
</tr>
<tr>
<td>Emission days</td>
<td>365</td>
</tr>
</tbody>
</table>

### Conditions and measures related to treatment of waste (including article waste)

| Waste treatment                          | External treatment and disposal of waste should comply with applicable local and/or national regulations. |

### Other conditions affecting environmental exposure

<table>
<thead>
<tr>
<th>Receiving surface water flow</th>
<th>18,000 m³/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local freshwater dilution factor</td>
<td>10</td>
</tr>
<tr>
<td>Local marine water dilution factor</td>
<td>100</td>
</tr>
</tbody>
</table>

### 6.2.2. Control of consumer exposure: Adhesives, sealants (PC1)

#### Product (article) characteristics

Covers percentage substance in the product up to 100%.

| Physical form of product                 | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

#### Amount used, frequency and duration of use (or from service life)

| Duration                                | Covers daily exposures up to 8 hours |

#### Conditions and measures related to personal protection, hygiene and health evaluation

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. No other specific measures identified.

#### Other conditions affecting consumers exposure

| Temperature                             | Assumes use at not more than 20°C above ambient temperature. |

### 6.2.3. Control of consumer exposure: Anti-Freeze and de-icing products (PC4)

#### Product (article) characteristics

SDS Number: 100000068203

62/154
## Conditions and measures related to personal protection, hygiene and health evaluation

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting consumers exposure

**Temperature**

Assumes use at not more than 20°C above ambient temperature.

### 6.2.4. Control of consumer exposure: Biocidal products (PC8)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

#### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>

### Conditions and measures related to personal protection, hygiene and health evaluation

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting consumers exposure

**Temperature**

Assumes use at not more than 20°C above ambient temperature.

### 6.2.5. Control of consumer exposure: Coatings and paints, thinners, paint removers (PC9a)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.
**Physical form of product**  
Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

**Amount used, frequency and duration of use (or from service life)**  
Duration  
Covers daily exposures up to 8 hours

**Conditions and measures related to personal protection, hygiene and health evaluation**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting consumers exposure**

Temperature  
Assumes use at not more than 20°C above ambient temperature.

6.2.6. Control of consumer exposure: Fillers, putties, plasters, modelling clay (PC9b)

**Product (article) characteristics**

Covers percentage substance in the product up to 100 %.

**Physical form of product**  
Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

**Amount used, frequency and duration of use (or from service life)**  
Duration  
Covers daily exposures up to 8 hours

**Conditions and measures related to personal protection, hygiene and health evaluation**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting consumers exposure**

Temperature  
Assumes use at not more than 20°C above ambient temperature.

6.2.7. Control of consumer exposure: Finger paints (PC9c)

**Product (article) characteristics**

Covers percentage substance in the product up to 100 %.

**Physical form of product**  
Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

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## AlphaPlus® 1-DODECENE

### Version 5.0

<table>
<thead>
<tr>
<th>Amount used, frequency and duration of use (or from service life)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Duration</strong> : Covers daily exposures up to 8 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conditions and measures related to personal protection, hygiene and health evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other conditions affecting consumers exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature</strong> : Assumes use at not more than 20°C above ambient temperature.</td>
</tr>
</tbody>
</table>

#### 6.2.8. Control of consumer exposure: Non-metal surface treatment products (PC15)

<table>
<thead>
<tr>
<th>Product (article) characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covers percentage substance in the product up to 100 %.</td>
</tr>
<tr>
<td>Physical form of product : Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount used, frequency and duration of use (or from service life)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Duration</strong> : Covers daily exposures up to 8 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conditions and measures related to personal protection, hygiene and health evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other conditions affecting consumers exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature</strong> : Assumes use at not more than 20°C above ambient temperature.</td>
</tr>
</tbody>
</table>

#### 6.2.9. Control of consumer exposure: Ink and toners (PC18)

<table>
<thead>
<tr>
<th>Product (article) characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covers percentage substance in the product up to 100 %.</td>
</tr>
<tr>
<td>Physical form of product : Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount used, frequency and duration of use (or from service life)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SDS Number:</strong> 100000068203 65/154</td>
</tr>
</tbody>
</table>
AlphaPlus® 1-DODECENE

Duration: Covers daily exposures up to 8 hours

### Conditions and measures related to personal protection, hygiene and health evaluation

Do not ingest. If swallowed then seek immediate medical assistance.

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

No other specific measures identified.

### Other conditions affecting consumers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

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#### 6.2.10. Control of consumer exposure: Leather treatment products (PC23)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

### Conditions and measures related to personal protection, hygiene and health evaluation

Do not ingest. If swallowed then seek immediate medical assistance.

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

No other specific measures identified.

### Other conditions affecting consumers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

---

#### 6.2.11. Control of consumer exposure: Lubricants, greases, release products (PC24)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

---

SDS Number:100000068203

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## Conditions and measures related to personal protection, hygiene and health evaluation

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting consumers exposure

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

### 6.2.12. Control of consumer exposure: Polishes and wax blends (PC31)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

#### Amount used, frequency and duration of use (or from service life)

| Duration | Covers daily exposures up to 8 hours |

#### Conditions and measures related to personal protection, hygiene and health evaluation

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting consumers exposure

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

### 6.2.13. Control of consumer exposure: Textile dyes and impregnating products (PC34)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

#### Amount used, frequency and duration of use (or from service life)

| Duration | Covers daily exposures up to 8 hours |

#### Conditions and measures related to personal protection, hygiene and health evaluation
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting consumers exposure**

Temperature: Assumes use at not more than 20°C above ambient temperature.

### 6.3. Exposure estimation and reference to its source

**6.3.1. Environmental release and exposure:** Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Exposure level</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater</td>
<td>0.0358 µg/l (EUSES)</td>
<td>0.040</td>
</tr>
<tr>
<td>Sea water</td>
<td>0.0034 µg/l (EUSES)</td>
<td>0.004</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0.0856 mg/kg wet weight (EUSES)</td>
<td>0.040</td>
</tr>
<tr>
<td>Sea sediment</td>
<td>0.0081 mg/kg wet weight (EUSES)</td>
<td>0.004</td>
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<tr>
<td>Soil</td>
<td>0.0364 mg/kg wet weight (EUSES)</td>
<td>0.021</td>
</tr>
<tr>
<td>Air</td>
<td>0.246 µg/m3</td>
<td></td>
</tr>
</tbody>
</table>

**Additional information on exposure estimation**

Common practices vary across sites thus conservative process release estimates used.

**6.3.2. Consumer exposure:** Adhesives, sealants (PC1)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

**6.3.3. Consumer exposure:** Anti-Freeze and de-icing products (PC4)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

**6.3.4. Consumer exposure:** Biocidal products (PC8)
### Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

### 6.3.5. Consumer exposure: Coatings and paints, thinners, paint removers (PC9a)

### Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

### 6.3.6. Consumer exposure: Fillers, putties, plasters, modelling clay (PC9b)

### Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

### 6.3.7. Consumer exposure: Finger paints (PC9c)

### Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

### 6.3.8. Consumer exposure: Non-metal surface treatment products (PC15)

### Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

### 6.3.9. Consumer exposure: Ink and toners (PC18)

### Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

### 6.3.10. Consumer exposure: Leather treatment products (PC23)

### Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

### 6.3.11. Consumer exposure: Lubricants, greases, release products (PC24)

### Additional information on exposure estimation

A quantitative risk assessment is not required for human health.
6.3.12. Consumer exposure: Polishes and wax blends (PC31)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

6.3.13. Consumer exposure: Textile dyes and impregnating products (PC34)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

6.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
ES7: ; Use as a cleaning agent – industrial; Industrial uses (SU3).

7.1. Title section

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<td>Structured Short Title</td>
<td>; Use as a cleaning agent – industrial; Industrial uses (SU3).</td>
</tr>
<tr>
<td>Substance</td>
<td>dodec-1-ene</td>
</tr>
<tr>
<td>EC-No.</td>
<td>203-968-4</td>
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</table>

Environmental

<table>
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<th>Use as a cleaning agent – industrial</th>
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<td>ERC4</td>
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Worker

<table>
<thead>
<tr>
<th>CS2</th>
<th>General measures applicable to all activities, General measures (skin irritants)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC2</td>
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<tr>
<td>CS3</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
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<tr>
<td>PROC3</td>
<td></td>
</tr>
<tr>
<td>CS4</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td>PROC4</td>
<td></td>
</tr>
<tr>
<td>CS5</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td>PROC7</td>
<td></td>
</tr>
<tr>
<td>CS6</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td>PROC8a</td>
<td></td>
</tr>
<tr>
<td>CS7</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
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<td>PROC8b</td>
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</tr>
<tr>
<td>CS8</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td>PROC10</td>
<td></td>
</tr>
<tr>
<td>CS9</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td>PROC13</td>
<td></td>
</tr>
</tbody>
</table>

7.2. Conditions of use affecting exposure

7.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Maximum allowable site tonnage (MSafe)</th>
<th>8.410 kg/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release type</td>
<td>Continuous release</td>
</tr>
<tr>
<td>Emission days</td>
<td>300</td>
</tr>
</tbody>
</table>

SDS Number: 100000068203                 71/154
## Technical and organisational conditions and measures

Risk from environmental exposure is driven by soil. 
Air - minimum efficiency of 70 % 
Water - minimum efficiency of 96.4 %

### Conditions and measures related to sewage treatment plant

<table>
<thead>
<tr>
<th>STP type</th>
<th>Municipal sewage treatment plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>STP sludge treatment</td>
<td>Prevent discharge of undissolved substance to or recover from wastewater. Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.</td>
</tr>
<tr>
<td>STP effluent</td>
<td>2.000 m3/d</td>
</tr>
</tbody>
</table>

### Conditions and measures related to treatment of waste (including article waste)

| Waste treatment          | External treatment and disposal of waste should comply with applicable local and/or national regulations. |

### Other conditions affecting environmental exposure

<table>
<thead>
<tr>
<th>Receiving surface water flow</th>
<th>18.000 m3/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local freshwater dilution factor</td>
<td>10</td>
</tr>
<tr>
<td>Local marine water dilution factor</td>
<td>100</td>
</tr>
</tbody>
</table>

### 7.2.2. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

### Amount used, frequency and duration of use (or from service life)

| Duration                  | Covers daily exposures up to 8 hours |

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. 
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

| Temperature               | Assumes use at not more than 20°C above ambient temperature. |

SDS Number:100000068203
## Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product: Liquid, vapour pressure $< 0.5$ kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

## Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product: Liquid, vapour pressure $< 0.5$ kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.
## 7.2.5. Control of worker exposure: Industrial spraying (PROC7)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

## 7.2.6. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.
7.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

7.2.8. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.
7.2.9. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

7.3. Exposure estimation and reference to its source

7.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Exposure level</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater</td>
<td>0,022 µg/l (EUSES)</td>
<td>0,024</td>
</tr>
<tr>
<td>Sea water</td>
<td>0,002 µg/l (EUSES)</td>
<td>0,002</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0,0525 mg/kg wet weight (EUSES)</td>
<td>0,025</td>
</tr>
<tr>
<td>Sea sediment</td>
<td>0,0048 mg/kg wet weight (EUSES)</td>
<td>0,002</td>
</tr>
<tr>
<td>Soil</td>
<td>0,114 mg/kg wet weight (EUSES)</td>
<td>0,065</td>
</tr>
<tr>
<td>Air</td>
<td>0,0046 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Additional information on exposure estimation

Common practices vary across sites thus conservative process release estimates used.
### Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

### 7.3.2. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

### 7.3.3. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

### 7.3.4. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

### 7.3.5. Worker exposure: Industrial spraying (PROC7)

### 7.3.6. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

### 7.3.7. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

### 7.3.8. Worker exposure: Roller application or brushing (PROC10)

### 7.3.9. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

A quantitative risk assessment is not required for human health.
7.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
**ES8**: Use as a cleaning agent – professional; Professional uses (SU22).

### 8.1. Title section

<table>
<thead>
<tr>
<th>Exposure Scenario name</th>
<th>Use as a cleaning agent – professional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured Short Title</td>
<td>; Use as a cleaning agent – professional; Professional uses (SU22).</td>
</tr>
<tr>
<td>Substance</td>
<td>dodec-1-ene</td>
</tr>
<tr>
<td></td>
<td>EC-No.: 203-968-4</td>
</tr>
</tbody>
</table>

### Environment

<table>
<thead>
<tr>
<th>CS1</th>
<th>Use as a cleaning agent – professional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ERC8a, ERC8d</td>
</tr>
</tbody>
</table>

### Worker

<table>
<thead>
<tr>
<th>CS2</th>
<th>General measures applicable to all activities, General measures (skin irritants)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PROC2</td>
</tr>
<tr>
<td>CS3</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC3</td>
</tr>
<tr>
<td>CS4</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC4</td>
</tr>
<tr>
<td>CS5</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC8a</td>
</tr>
<tr>
<td>CS6</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC8b</td>
</tr>
<tr>
<td>CS7</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC10</td>
</tr>
<tr>
<td>CS8</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC11</td>
</tr>
<tr>
<td>CS9</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC13</td>
</tr>
</tbody>
</table>

### 8.2. Conditions of use affecting exposure

#### 8.2.1. Control of environmental exposure:
Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Maximum allowable site tonnage (MSafe)</th>
<th>45 kg/day</th>
</tr>
</thead>
</table>

SDS Number: 100000068203 79/154
### Technical and organisational conditions and measures

**Release type**
Wide dispersive use

**Emission days**
300

### Conditions and measures related to sewage treatment plant

- **STP type**: Municipal sewage treatment plant
- **STP sludge treatment**: Prevent discharge of undissolved substance to or recover from wastewater. Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
- **STP effluent**: 2,000 m³/d

### Conditions and measures related to treatment of waste (including article waste)

- **Waste treatment**: External treatment and disposal of waste should comply with applicable local and/or national regulations.

### Other conditions affecting environmental exposure

- **Receiving surface water flow**: 18,000 m³/d
- **Local freshwater dilution factor**: 10
- **Local marine water dilution factor**: 100

### 8.2.2. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

### Product (article) characteristics

- **Covers percentage substance in the product up to 100%**.
- **Physical form of product**: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

- **Duration**: Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures

- **Do not ingest. If swallowed then seek immediate medical assistance.**
- **Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.**
- **No other specific measures identified.**

### Other conditions affecting workers exposure

SDS Number: 100000068203
Temperature: Assumes use at not more than 20°C above ambient temperature.

8.2.3. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Product (article) characteristics
Covers percentage substance in the product up to 100%.
Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)
Duration: Covers daily exposures up to 8 hours

Technical and organisational conditions and measures
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure
Temperature: Assumes use at not more than 20°C above ambient temperature.

8.2.4. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics
Covers percentage substance in the product up to 100%.
Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)
Duration: Covers daily exposures up to 8 hours

Technical and organisational conditions and measures
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.
Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

8.2.5. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

8.2.6. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.
### Other conditions affecting workers exposure

**Temperature**
Assumes use at not more than 20°C above ambient temperature.

### 8.2.7. Control of worker exposure: Roller application or brushing (PROC10)

#### Product (article) characteristics
Covers percentage substance in the product up to 100%.

**Physical form of product**
Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

**Duration**
Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature**
Assumes use at not more than 20°C above ambient temperature.

### 8.2.8. Control of worker exposure: Non-industrial spraying (PROC11)

#### Product (article) characteristics
Covers percentage substance in the product up to 100%.

**Physical form of product**
Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

**Duration**
Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

No other specific measures identified.
Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

8.2.9. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics

Covers percentage substance in the product up to 100%.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

8.3. Exposure estimation and reference to its source

8.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Exposure level</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater</td>
<td>0.0219 µg/l (EUSES)</td>
<td>0.024</td>
</tr>
<tr>
<td>Sea water</td>
<td>0.002 µg/l (EUSES)</td>
<td>0.002</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0.0523 mg/kg wet weight (EUSES)</td>
<td>0.024</td>
</tr>
<tr>
<td>Sea sediment</td>
<td>0.0048 mg/kg wet weight (EUSES)</td>
<td>0.002</td>
</tr>
<tr>
<td>Soil</td>
<td>0.105 µg/kg wet weight (EUSES)</td>
<td>0.000</td>
</tr>
<tr>
<td>Air</td>
<td>0.0061 µg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Additional information on exposure estimation

Common practices vary across sites thus conservative process release estimates used.
8.3.2. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

8.3.3. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

8.3.4. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

8.3.5. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

8.3.6. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

8.3.7. Worker exposure: Roller application or brushing (PROC10)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

8.3.8. Worker exposure: Non-industrial spraying (PROC11)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

8.3.9. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

8.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
ES9: ; Use as a cleaning agent – consumer; Consumer uses (SU21).

9.1. Title section

<table>
<thead>
<tr>
<th>Exposure Scenario name</th>
<th>Use as a cleaning agent – consumer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured Short Title</td>
<td>; Use as a cleaning agent – consumer; Consumer uses (SU21).</td>
</tr>
<tr>
<td>Substance</td>
<td>dodec-1-ene EC-No.: 203-968-4</td>
</tr>
</tbody>
</table>

9.2. Conditions of use affecting exposure

9.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

<table>
<thead>
<tr>
<th>Product (article) characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covers percentage substance in the product up to 100 %.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount used, frequency and duration of use (or from service life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum allowable site tonnage</td>
</tr>
<tr>
<td>14 kg/day</td>
</tr>
</tbody>
</table>
### Conditions and measures related to treatment of waste (including article waste)

| Waste treatment | External treatment and disposal of waste should comply with applicable local and/or national regulations. |

### Other conditions affecting environmental exposure

| Receiving surface water flow | 18.000 m3/d |
| Local freshwater dilution factor | 10 |
| Local marine water dilution factor | 100 |

### 9.2.2. Control of consumer exposure: Air care products (PC3)

#### Product (article) characteristics

Covers percentage substance in the product up to 100%.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

### Amount used, frequency and duration of use (or from service life)

| Duration | Covers daily exposures up to 8 hours |

### Conditions and measures related to personal protection, hygiene and health evaluation

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting consumers exposure

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

### 9.2.3. Control of consumer exposure: Anti-Freeze and de-icing products (PC4)

#### Product (article) characteristics

Covers percentage substance in the product up to 100%.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

### Amount used, frequency and duration of use (or from service life)

| SDS Number:100000068203 | 88/154 |
### Conditions and measures related to personal protection, hygiene and health evaluation

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting consumers exposure

**Temperature**

Assumes use at not more than 20°C above ambient temperature.

---

### 9.2.4. Control of consumer exposure: Biocidal products (PC8)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

#### Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

### Conditions and measures related to personal protection, hygiene and health evaluation

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting consumers exposure

**Temperature**

Assumes use at not more than 20°C above ambient temperature.

---

### 9.2.5. Control of consumer exposure: Coatings and paints, thinners, paint removers (PC9a)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

#### Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours
### Conditions and measures related to personal protection, hygiene and health evaluation

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting consumers exposure

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

#### 9.2.6. Control of consumer exposure: Fillers, putties, plasters, modelling clay (PC9b)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

### Amount used, frequency and duration of use (or from service life)

| Duration | Covers daily exposures up to 8 hours |

### Conditions and measures related to personal protection, hygiene and health evaluation

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting consumers exposure

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

#### 9.2.7. Control of consumer exposure: Finger paints (PC9c)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

### Amount used, frequency and duration of use (or from service life)

| Duration | Covers daily exposures up to 8 hours |

### Conditions and measures related to personal protection, hygiene and health evaluation
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting consumers exposure

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

9.2.8. Control of consumer exposure: Lubricants, greases, release products (PC24)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>

### Conditions and measures related to personal protection, hygiene and health evaluation

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting consumers exposure

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

9.2.9. Control of consumer exposure: Washing and cleaning products (PC35)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>
occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / 
minimise exposures and to report any skin problems that may develop. 
No other specific measures identified.

Other conditions affecting consumers exposure

Temperature : Assumes use at not more than 20°C above ambient 
temperature.

9.2.10. Control of consumer exposure: Welding and soldering products, flux products (PC38)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature 
and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation

Do not ingest. If swallowed then seek immediate medical assistance. 
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves 
tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they 
occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / 
minimise exposures and to report any skin problems that may develop. 
No other specific measures identified.

Other conditions affecting consumers exposure

Temperature : Assumes use at not more than 20°C above ambient 
temperature.

9.3. Exposure estimation and reference to its source

9.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Exposure level</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater</td>
<td>0.0567 µg/l (EUSES)</td>
<td>0.063</td>
</tr>
<tr>
<td>Sea water</td>
<td>0.0055 µg/l (EUSES)</td>
<td>0.006</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0.136 mg/kg wet weight (EUSES)</td>
<td>0.063</td>
</tr>
<tr>
<td>Sea sediment</td>
<td>0.0131 mg/kg wet weight (EUSES)</td>
<td>0.006</td>
</tr>
<tr>
<td>Soil</td>
<td>0.0898 mg/kg wet weight (EUSES)</td>
<td>0.052</td>
</tr>
<tr>
<td>Air</td>
<td>0.238 µg/m3</td>
<td></td>
</tr>
</tbody>
</table>

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### Additional information on exposure estimation

Common practices vary across sites thus conservative process release estimates used.

#### 9.3.2. Consumer exposure: Air care products (PC3)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

#### 9.3.3. Consumer exposure: Anti-Freeze and de-icing products (PC4)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

#### 9.3.4. Consumer exposure: Biocidal products (PC8)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

#### 9.3.5. Consumer exposure: Coatings and paints, thinners, paint removers (PC9a)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

#### 9.3.6. Consumer exposure: Fillers, putties, plasters, modelling clay (PC9b)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

#### 9.3.7. Consumer exposure: Finger paints (PC9c)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

#### 9.3.8. Consumer exposure: Lubricants, greases, release products (PC24)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.
9.3.9. Consumer exposure: Washing and cleaning products (PC35)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

9.3.10. Consumer exposure: Welding and soldering products, flux products (PC38)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

9.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
ES10: Use in Oil and Gas field drilling and production operations - Industrial; Industrial uses (SU3).

10.1. Title section

<table>
<thead>
<tr>
<th>Exposure Scenario name</th>
<th>:</th>
<th>Use in Oil and Gas field drilling and production operations - Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured Short Title</td>
<td>:</td>
<td>Use in Oil and Gas field drilling and production operations - Industrial; Industrial uses (SU3).</td>
</tr>
<tr>
<td>Substance</td>
<td>:</td>
<td>dodec-1-ene EC-No.: 203-968-4</td>
</tr>
</tbody>
</table>

Environment

CS1 Use in Oil and Gas field drilling and production operations - Industrial ERC4

Worker

CS2 General measures applicable to all activities, General measures (skin irritants) PROC1
CS3 General measures applicable to all activities, General measures (skin irritants) PROC2
CS4 General measures applicable to all activities, General measures (skin irritants) PROC3
CS5 General measures applicable to all activities, General measures (skin irritants) PROC4
CS6 General measures applicable to all activities, General measures (skin irritants) PROC8a
CS7 General measures applicable to all activities, General measures (skin irritants) PROC8b

10.2. Conditions of use affecting exposure

10.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use (or from service life)

Release type : Continuous release

Technical and organisational conditions and measures

Discharge to the marine compartment prohibited.

Conditions and measures related to treatment of waste (including article waste)
Waste treatment: External treatment and disposal of waste should comply with applicable local and/or national regulations.

### 10.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

#### Product (article) characteristics

Covers percentage substance in the product up to 100%.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

#### Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**

Temperature: Assumes use at not more than 20°C above ambient temperature.

### 10.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

#### Product (article) characteristics

Covers percentage substance in the product up to 100%.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

#### Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.
**Other conditions affecting workers exposure**

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

**10.2.4. Control of worker exposure:** Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

**Product (article) characteristics**

| Covers percentage substance in the product up to 100 %. |
| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

**Amount used, frequency and duration of use (or from service life)**

| Duration | Covers daily exposures up to 8 hours |

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

**10.2.5. Control of worker exposure:** Chemical production where opportunity for exposure arises (PROC4)

**Product (article) characteristics**

| Covers percentage substance in the product up to 100 %. |
| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

**Amount used, frequency and duration of use (or from service life)**

| Duration | Covers daily exposures up to 8 hours |

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
### SAFETY DATA SHEET

**AlphaPlus® 1-DODECENE**

**Version 5.0**

| SDS Number: 100000068203 |

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<table>
<thead>
<tr>
<th>Other conditions affecting workers exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10.2.6. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product (article) characteristics</strong></td>
</tr>
<tr>
<td>Covers percentage substance in the product up to 100 %.</td>
</tr>
<tr>
<td>Physical form of product</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount used, frequency and duration of use (or from service life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical and organisational conditions and measures</th>
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</thead>
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<td>Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Other conditions affecting workers exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product (article) characteristics</strong></td>
</tr>
<tr>
<td>Covers percentage substance in the product up to 100 %.</td>
</tr>
<tr>
<td>Physical form of product</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount used, frequency and duration of use (or from service life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical and organisational conditions and measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.</td>
</tr>
</tbody>
</table>

---
minimise exposures and to report any skin problems that may develop. 
No other specific measures identified.

Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

10.3. Exposure estimation and reference to its source

10.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Additional information on exposure estimation
Quantitative exposure and risk assessment not possible due to lack of emissions to aquatic environment. Qualitative approach used to conclude safe use.

10.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

10.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

10.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

10.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

10.3.6. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.
10.3.7. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

<table>
<thead>
<tr>
<th>Additional information on exposure estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A quantitative risk assessment is not required for human health.</td>
</tr>
</tbody>
</table>

10.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES
Discharge to aquatic environment is restricted by law and industry prohibits release.
ES11: Use in Oil and Gas field drilling and production operations – Professional; Professional uses (SU22).

11.1. Title section

<table>
<thead>
<tr>
<th>Exposure Scenario name</th>
<th>Use in Oil and Gas field drilling and production operations – Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured Short Title</td>
<td>; Use in Oil and Gas field drilling and production operations – Professional; Professional uses (SU22).</td>
</tr>
<tr>
<td>Substance</td>
<td>dodec-1-ene EC-No.: 203-968-4</td>
</tr>
</tbody>
</table>

11.2. Conditions of use affecting exposure

11.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

<table>
<thead>
<tr>
<th>Product (article) characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covers percentage substance in the product up to 100 %.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount used, frequency and duration of use (or from service life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release type</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical and organisational conditions and measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge to the marine compartment prohibited.</td>
</tr>
</tbody>
</table>
### 11.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

#### Product (article) characteristics

Covers percentage substance in the product up to 100%.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

#### Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

No other specific measures identified.

#### Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

### 11.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

#### Product (article) characteristics

Covers percentage substance in the product up to 100%.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

#### Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

11.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

11.2.5. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.
occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

11.2.6. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Product (article) characteristics

Covers percentage substance in the product up to 100%.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

11.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Product (article) characteristics

Covers percentage substance in the product up to 100%.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves
11.3. Exposure estimation and reference to its source

11.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

**Additional information on exposure estimation**

Quantitative exposure and risk assessment not possible due to lack of emissions to aquatic environment. Qualitative approach used to conclude safe use.

11.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

11.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

11.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

11.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

11.3.6. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.
A quantitative risk assessment is not required for human health.

11.3.7. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

11.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Discharge to aquatic environment is restricted by law and industry prohibits release.
ES12: Lubricants - Industrial; Industrial uses (SU3).

12.1. Title section

Exposure Scenario name: Lubricants - Industrial
Structured Short Title: Lubricants - Industrial; Industrial uses (SU3).
Substance: dodec-1-ene
EC-No.: 203-968-4

Environment

CS1 Lubricants - Industrial ERC4, ERC7

Worker

CS2 General measures applicable to all activities, General measures (skin irritants) PROC1
CS3 General measures applicable to all activities, General measures (skin irritants) PROC2
CS4 General measures applicable to all activities, General measures (skin irritants) PROC3
CS5 General measures applicable to all activities, General measures (skin irritants) PROC4
CS6 General measures applicable to all activities, General measures (skin irritants) PROC7
CS7 General measures applicable to all activities, General measures (skin irritants) PROC8a
CS8 General measures applicable to all activities, General measures (skin irritants) PROC8b
CS9 General measures applicable to all activities, General measures (skin irritants) PROC9
CS10 General measures applicable to all activities, General measures (skin irritants) PROC10
CS11 General measures applicable to all activities, General measures (skin irritants) PROC13
CS12 General measures applicable to all activities, General measures (skin irritants) PROC17
CS13 General measures applicable to all activities, General measures (skin irritants) PROC18

12.2. Conditions of use affecting exposure

12.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4) / Use of functional fluid at industrial site (ERC7)

Product (article) characteristics

SDS Number: 100000068203 107/154
Covers percentage substance in the product up to 100 %.

**Amount used, frequency and duration of use (or from service life)**

| Maximum allowable site tonnage (MSafe) | 21.739 kg/day |
| Release type | Continuous release |
| Emission days | 300 |

**Technical and organisational conditions and measures**

Risk from environmental exposure is driven by freshwater sediment. Air - minimum efficiency of 70 % Water - minimum efficiency of 96.4 %

**Conditions and measures related to sewage treatment plant**

| STP type | Municipal sewage treatment plant |
| STP sludge treatment | Prevent discharge of undissolved substance to or recover from wastewater. Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed. |
| STP effluent | 2.000 m³/d |

**Conditions and measures related to treatment of waste (including article waste)**

Waste treatment: External treatment and disposal of waste should comply with applicable local and/or national regulations.

**Other conditions affecting environmental exposure**

| Receiving surface water flow | 18.000 m³/d |
| Local freshwater dilution factor | 10 |
| Local marine water dilution factor | 100 |

12.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

**Product (article) characteristics**

Covers percentage substance in the product up to 100 %.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

**Amount used, frequency and duration of use (or from service life)**

Duration: Covers daily exposures up to 8 hours

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves.
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<table>
<thead>
<tr>
<th>SDS Number:100000068203</th>
</tr>
</thead>
</table>

12.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

12.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

Other conditions affecting workers exposure

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

Other conditions affecting workers exposure

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>
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**Other conditions affecting workers exposure**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

---

**12.2.5. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)**

**Product (article) characteristics**

<table>
<thead>
<tr>
<th>Covers percentage substance in the product up to 100 %.</th>
</tr>
</thead>
</table>

**Physical form of product**

| Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

---

**Amount used, frequency and duration of use (or from service life)**

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>

---

**Technical and organisational conditions and measures**

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**Other conditions affecting workers exposure**

---

**12.2.6. Control of worker exposure: Industrial spraying (PROC7)**

**Product (article) characteristics**

<table>
<thead>
<tr>
<th>Covers percentage substance in the product up to 100 %.</th>
</tr>
</thead>
</table>

**Physical form of product**

| Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

---

**Amount used, frequency and duration of use (or from service life)**

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>

---

**Technical and organisational conditions and measures**

---

SDS Number: 100000068203 110/154
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

12.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

12.2.8. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature** : Assumes use at not more than 20°C above ambient temperature.

### 12.2.9. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

**Physical form of product** : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

**Duration** : Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature** : Assumes use at not more than 20°C above ambient temperature.

### 12.2.10. Control of worker exposure: Roller application or brushing (PROC10)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

**Physical form of product** : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

#### Technical and organisational conditions and measures

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Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

12.2.11. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)
Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure
Temperature : Assumes use at not more than 20°C above ambient temperature.

12.2.12. Control of worker exposure: Lubrication at high energy conditions in metal working operations (PROC17)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)
Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure
Temperature : Assumes use at not more than 20°C above ambient temperature.
Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

12.2.13. Control of worker exposure: General greasing/lubrication at high kinetic energy conditions (PROC18)

**Product (article) characteristics**

Covers percentage substance in the product up to 100 %.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

**Amount used, frequency and duration of use (or from service life)**

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

12.3. Exposure estimation and reference to its source

12.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4) / Use of functional fluid at industrial site (ERC7)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Exposure level</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater</td>
<td>0.0227 µg/l (EUSES)</td>
<td>0.025</td>
</tr>
<tr>
<td>Sea water</td>
<td>0.0021 µg/l (EUSES)</td>
<td>0.002</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0.0544 mg/kg wet weight (EUSES)</td>
<td>0.025</td>
</tr>
<tr>
<td>Sea sediment</td>
<td>0.005 mg/kg wet weight (EUSES)</td>
<td>0.002</td>
</tr>
<tr>
<td>Soil</td>
<td>0.0024 mg/kg wet weight</td>
<td>0.001</td>
</tr>
</tbody>
</table>

SDS Number: 1000000068203
### Additional information on exposure estimation

Common practices vary across sites thus conservative process release estimates used.

### 12.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

### 12.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

### 12.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

### 12.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

### 12.3.6. Worker exposure: Industrial spraying (PROC7)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

### 12.3.7. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

### 12.3.8. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.
A quantitative risk assessment is not required for human health.

12.3.9. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

12.3.10. Worker exposure: Roller application or brushing (PROC10)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

12.3.11. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

12.3.12. Worker exposure: Lubrication at high energy conditions in metal working operations (PROC17)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

12.3.13. Worker exposure: General greasing/lubrication at high kinetic energy conditions (PROC18)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

12.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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**ES13: ; Lubricants - Professional; Professional uses (SU22).**

## 13.1. Title section

<table>
<thead>
<tr>
<th>Exposure Scenario name</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lubricants - Professional</td>
<td>dodec-1-ene</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Structured Short Title</th>
<th>EC-No.:</th>
</tr>
</thead>
<tbody>
<tr>
<td>; Lubricants - Professional; Professional uses (SU22).</td>
<td>203-968-4</td>
</tr>
</tbody>
</table>

## Environment

<table>
<thead>
<tr>
<th>CS1</th>
<th>Lubricants - Professional</th>
<th>ERC8a, ERC8d, ERC9a, ERC9b</th>
</tr>
</thead>
</table>

## Worker

<table>
<thead>
<tr>
<th>CS2</th>
<th>General measures applicable to all activities, General measures (skin irritants)</th>
<th>PROC1</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS3</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
<td>PROC2</td>
</tr>
<tr>
<td>CS4</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
<td>PROC3</td>
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<td>CS5</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
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<tr>
<td>CS7</td>
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<td>PROC8b</td>
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<td>CS8</td>
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<td>CS11</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
<td>PROC13</td>
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<tr>
<td>CS12</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
<td>PROC17</td>
</tr>
<tr>
<td>CS13</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
<td>PROC18</td>
</tr>
<tr>
<td>CS14</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
<td>PROC20</td>
</tr>
</tbody>
</table>
### 13.2. Conditions of use affecting exposure

#### 13.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d) / Widespread use of functional fluid (indoor) (ERC9a) / Widespread use of functional fluid (outdoor) (ERC9b)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

#### Amount used, frequency and duration of use (or from service life)

- **Maximum allowable site tonnage** (MSafe): 9 kg/day
- **Release type**: Wide dispersive use
- **Emission days**: 300

#### Technical and organisational conditions and measures

Risk from environmental exposure is driven by soil.
- **Air** - minimum efficiency of 0 %
- **Water** - minimum efficiency of 96.4 %

#### Conditions and measures related to sewage treatment plant

- **STP type**: Municipal sewage treatment plant
- **STP sludge treatment**: Prevent discharge of undissolved substance to or recover from wastewater. Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
- **STP effluent**: 2,000 m³/d

#### Conditions and measures related to treatment of waste (including article waste)

- **Waste treatment**: External treatment and disposal of waste should comply with applicable local and/or national regulations.

#### Other conditions affecting environmental exposure

- **Receiving surface water flow**: 18,000 m³/d
- **Local freshwater dilution factor**: 10
- **Local marine water dilution factor**: 100

#### 13.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

- **Physical form of product**: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
## Amount used, frequency and duration of use (or from service life)

**Duration**: Covers daily exposures up to 8 hours

## Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature**: Assurnes use at not more than 20°C above ambient temperature.

### 13.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

## Product (article) characteristics

Covers percentage substance in the product up to 100 %.

**Physical form of product**: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

## Amount used, frequency and duration of use (or from service life)

**Duration**: Covers daily exposures up to 8 hours

## Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature**: Assurnes use at not more than 20°C above ambient temperature.

### 13.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

## Product (article) characteristics

Covers percentage substance in the product up to 100 %.
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<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

**Amount used, frequency and duration of use (or from service life)**

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

**13.2.5. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)**

**Product (article) characteristics**

Covers percentage substance in the product up to 100 %.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

**Amount used, frequency and duration of use (or from service life)**

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Assumes use at not more than 20°C above ambient temperature.</th>
</tr>
</thead>
</table>

**13.2.6. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)**

**Product (article) characteristics**

Covers percentage substance in the product up to 100 %.

<table>
<thead>
<tr>
<th>SDS Number</th>
<th>100000068203</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>120/154</td>
</tr>
</tbody>
</table>
## Physical form of product
- Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

## Amount used, frequency and duration of use (or from service life)
- Duration: Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures
- Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure
- Temperature: Assumed use at not more than 20°C above ambient temperature.

### 13.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

### Product (article) characteristics
- Covers percentage substance in the product up to 100%.

## Physical form of product
- Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

## Amount used, frequency and duration of use (or from service life)
- Duration: Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures
- Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure
- Temperature: Assumed use at not more than 20°C above ambient temperature.

### 13.2.8. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

### Product (article) characteristics
- Covers percentage substance in the product up to 100%.
### Physical form of product
- Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

#### Amount used, frequency and duration of use (or from service life)
- **Duration**: Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures
- **Do not ingest. If swallowed then seek immediate medical assistance.**
- **Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.**

#### Other conditions affecting workers exposure
- **Temperature**: Assumes use at not more than 20°C above ambient temperature.

### 13.2.9. Control of worker exposure: Roller application or brushing (PROC10)

#### Product (article) characteristics
- Covers percentage substance in the product up to 100 %.
- **Physical form of product**: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

#### Amount used, frequency and duration of use (or from service life)
- **Duration**: Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures
- **Do not ingest. If swallowed then seek immediate medical assistance.**
- **Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.**

#### Other conditions affecting workers exposure
- **Temperature**: Assumes use at not more than 20°C above ambient temperature.

### 13.2.10. Control of worker exposure: Non-industrial spraying (PROC11)

#### Product (article) characteristics
- Covers percentage substance in the product up to 100 %.
- **Physical form of product**: Liquid, vapour pressure < 0.5 kPa at Standard Temperature
### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature**

Assumes use at not more than 20°C above ambient temperature.

### 13.2.11. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

**Product (article) characteristics**

Covers percentage substance in the product up to 100%.

**Physical form of product**

Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

**Duration**

Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature**

Assumes use at not more than 20°C above ambient temperature.

### 13.2.12. Control of worker exposure: Lubrication at high energy conditions in metal working operations (PROC17)

**Product (article) characteristics**

Covers percentage substance in the product up to 100%.

**Physical form of product**

Liquid, vapour pressure < 0.5 kPa at Standard Temperature
### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature**

Assumes use at not more than 20°C above ambient temperature.

---

**13.2.13. Control of worker exposure: General greasing/lubrication at high kinetic energy conditions (PROC18)**

### Product (article) characteristics

Covers percentage substance in the product up to 100%.

**Physical form of product**

Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

**Duration**

Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature**

Assumes use at not more than 20°C above ambient temperature.

---


### Product (article) characteristics

Covers percentage substance in the product up to 100%.

**Physical form of product**

Liquid, vapour pressure < 0.5 kPa at Standard Temperature
### SAFETY DATA SHEET

**AlphaPlus® 1-DODECENE**

Version 5.0

Revision Date 2019-06-24

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#### Amount used, frequency and duration of use (or from service life)

**Duration:** Covers daily exposures up to 8 hours

---

#### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

---

#### Other conditions affecting workers exposure

**Temperature:** Assumes use at not more than 20°C above ambient temperature.

---

### 13.3. Exposure estimation and reference to its source

#### 13.3.1. Environmental release and exposure:

Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d) / Widespread use of functional fluid (indoor) (ERC9a) / Widespread use of functional fluid (outdoor) (ERC9b)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Exposure level</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater</td>
<td>0.107 µg/l (EUSES)</td>
<td>0.118</td>
</tr>
<tr>
<td>Sea water</td>
<td>0.0105 µg/l (EUSES)</td>
<td>0.012</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0.255 mg/kg wet weight (EUSES)</td>
<td>0.119</td>
</tr>
<tr>
<td>Sea sediment</td>
<td>0.025 mg/kg wet weight (EUSES)</td>
<td>0.012</td>
</tr>
<tr>
<td>Soil</td>
<td>0.217 mg/kg wet weight (EUSES)</td>
<td>0.124</td>
</tr>
<tr>
<td>Air</td>
<td>0.0046 µg/m³</td>
<td></td>
</tr>
</tbody>
</table>

**Additional information on exposure estimation**

Common practices vary across sites thus conservative process release estimates used.

#### 13.3.2. Worker exposure:

Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

#### 13.3.3. Worker exposure:

Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

**Additional information on exposure estimation**

---

SDS Number: 100000068203 125/154
### 13.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

**Additional information on exposure estimation**

- A quantitative risk assessment is not required for human health.

### 13.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

**Additional information on exposure estimation**

- A quantitative risk assessment is not required for human health.

### 13.3.6. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

**Additional information on exposure estimation**

- A quantitative risk assessment is not required for human health.

### 13.3.7. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

**Additional information on exposure estimation**

- A quantitative risk assessment is not required for human health.

### 13.3.8. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

**Additional information on exposure estimation**

- A quantitative risk assessment is not required for human health.

### 13.3.9. Worker exposure: Roller application or brushing (PROC10)

**Additional information on exposure estimation**

- A quantitative risk assessment is not required for human health.

### 13.3.10. Worker exposure: Non-industrial spraying (PROC11)

**Additional information on exposure estimation**

- A quantitative risk assessment is not required for human health.

### 13.3.11. Worker exposure: Treatment of articles by dipping and pouring (PROC13)
**13.3.12. Worker exposure: Lubrication at high energy conditions in metal working operations (PROC17)**

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

**13.3.13. Worker exposure: General greasing/lubrication at high kinetic energy conditions (PROC18)**

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.


Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

**13.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
## Exposure Scenario name

**ES14:** Lubricants - Consumer; Consumer uses (SU21).

### 14.1. Title section

<table>
<thead>
<tr>
<th>Exposure Scenario name</th>
<th>Lubricants - Consumer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured Short Title</td>
<td>; Lubricants - Consumer; Consumer uses (SU21).</td>
</tr>
<tr>
<td>Substance</td>
<td>dodec-1-ene</td>
</tr>
<tr>
<td></td>
<td>EC-No.: 203-968-4</td>
</tr>
</tbody>
</table>

### Environment

| CS1 | Lubricants - Consumer | ERC8a, ERC8d, ERC9a, ERC9b |

#### Consumer

| CS2 | General measures applicable to all activities, General measures (skin irritants) | PC1 |
| CS3 | General measures applicable to all activities, General measures (skin irritants) | PC24 |
| CS4 | General measures applicable to all activities, General measures (skin irritants) | PC31 |

### 14.2. Conditions of use affecting exposure

#### 14.2.1. Control of environmental exposure

Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d) / Widespread use of functional fluid (indoor) (ERC9a) / Widespread use of functional fluid (outdoor) (ERC9b)

### Product (article) characteristics

Covers percentage substance in the product up to 100%.

<table>
<thead>
<tr>
<th>Amount used, frequency and duration of use (or from service life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum allowable site tonnage (MSafe)</td>
</tr>
<tr>
<td>Release type</td>
</tr>
<tr>
<td>Emission days</td>
</tr>
</tbody>
</table>

### Conditions and measures related to treatment of waste (including article waste)

Waste treatment: External treatment and disposal of waste should comply with applicable local and/or national regulations.

### Other conditions affecting environmental exposure

SDS Number:100000068203 128/154
Receiving surface water flow: 18,000 m³/d
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

14.2.2. Control of consumer exposure: Adhesives, sealants (PC1)

Product (article) characteristics
Covers percentage substance in the product up to 100%.
Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)
Duration: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation
Do not ingest. If swallowed then seek immediate medical assistance.
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
No other specific measures identified.

Other conditions affecting consumers exposure
Temperature: Assumes use at not more than 20°C above ambient temperature.

14.2.3. Control of consumer exposure: Lubricants, greases, release products (PC24)

Product (article) characteristics
Covers percentage substance in the product up to 100%.
Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)
Duration: Covers daily exposures up to 8 hours

Conditions and measures related to personal protection, hygiene and health evaluation
Do not ingest. If swallowed then seek immediate medical assistance.
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
No other specific measures identified.

Other conditions affecting consumers exposure
14.2.4. Control of consumer exposure: Polishes and wax blends (PC31)

**Product (article) characteristics**

Covers percentage substance in the product up to 100%.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

**Amount used, frequency and duration of use (or from service life)**

Duration: Covers daily exposures up to 8 hours

**Conditions and measures related to personal protection, hygiene and health evaluation**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting consumers exposure**

Temperature: Assumes use at not more than 20°C above ambient temperature.

14.3. Exposure estimation and reference to its source

14.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d) / Widespread use of functional fluid (indoor) (ERC9a) / Widespread use of functional fluid (outdoor) (ERC9b)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Exposure level</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater</td>
<td>0.0915 µg/l (EUSES)</td>
<td>0.102</td>
</tr>
<tr>
<td>Sea water</td>
<td>0.0089 µg/l (EUSES)</td>
<td>0.001</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0.219 mg/kg wet weight (EUSES)</td>
<td>0.102</td>
</tr>
<tr>
<td>Sea sediment</td>
<td>0.0214 mg/kg wet weight (EUSES)</td>
<td>0.001</td>
</tr>
<tr>
<td>Soil</td>
<td>0.178 mg/kg wet weight (EUSES)</td>
<td>0.102</td>
</tr>
<tr>
<td>Air</td>
<td>0.0038 µg/m3</td>
<td></td>
</tr>
</tbody>
</table>

**Additional information on exposure estimation**

Common practices vary across sites thus conservative process release estimates used.
14.3.2. Consumer exposure: Adhesives, sealants (PC1)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

14.3.3. Consumer exposure: Lubricants, greases, release products (PC24)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

14.3.4. Consumer exposure: Polishes and wax blends (PC31)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

14.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
ES15: ; Functional Fluids - Industrial; Industrial uses (SU3).

15.1. Title section

<table>
<thead>
<tr>
<th>Exposure Scenario name</th>
<th>Functional Fluids - Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured Short Title</td>
<td>; Functional Fluids - Industrial; Industrial uses (SU3).</td>
</tr>
<tr>
<td>Substance</td>
<td>dodec-1-ene</td>
</tr>
<tr>
<td></td>
<td>EC-No.: 203-968-4</td>
</tr>
</tbody>
</table>

Environment

| CS1 | Functional Fluids - Industrial                     |
|     | ERC7                                                    |

Worker

| CS2 | General measures applicable to all activities, General measures (skin irritants) |
|     | PROC1                                                   |
| CS3 | General measures applicable to all activities, General measures (skin irritants) |
|     | PROC2                                                   |
| CS4 | General measures applicable to all activities, General measures (skin irritants) |
|     | PROC3                                                   |
| CS5 | General measures applicable to all activities, General measures (skin irritants) |
|     | PROC4                                                   |
| CS6 | General measures applicable to all activities, General measures (skin irritants) |
|     | PROC8a                                                  |
| CS7 | General measures applicable to all activities, General measures (skin irritants) |
|     | PROC8b                                                  |
| CS8 | General measures applicable to all activities, General measures (skin irritants) |
|     | PROC9                                                   |

15.2. Conditions of use affecting exposure

15.2.1. Control of environmental exposure: Use of functional fluid at industrial site (ERC7)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Maximum allowable site tonnage (MSafe)</th>
<th>32.287 kg/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release type</td>
<td>Continuous release</td>
</tr>
<tr>
<td>Emission days</td>
<td>300</td>
</tr>
</tbody>
</table>

Technical and organisational conditions and measures

Risk from environmental exposure is driven by freshwater sediment.
### Conditions and measures related to sewage treatment plant

<table>
<thead>
<tr>
<th>STP type</th>
<th>Municipal sewage treatment plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>STP sludge treatment</td>
<td>Prevent discharge of undissolved substance to or recover from wastewater. Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.</td>
</tr>
<tr>
<td>STP effluent</td>
<td>2.000 m³/d</td>
</tr>
</tbody>
</table>

### Conditions and measures related to treatment of waste (including article waste)

| Waste treatment          | External treatment and disposal of waste should comply with applicable local and/or national regulations. |

### Other conditions affecting environmental exposure

- **Receiving surface water flow**: 18,000 m³/d
- **Local freshwater dilution factor**: 10
- **Local marine water dilution factor**: 100

### 15.2.2. Control of worker exposure

**Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)**

**Product (article) characteristics**

Covers percentage substance in the product up to 100 %.

- **Physical form of product**: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

**Amount used, frequency and duration of use (or from service life)**

- **Duration**: Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures

- Do not ingest. If swallowed then seek immediate medical assistance.
- Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
- No other specific measures identified.

### Other conditions affecting workers exposure

- **Temperature**: Assumes use at not more than 20°C above ambient temperature.
# Control of worker exposure

## 15.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

### Product (article) characteristics
Covers percentage substance in the product up to 100%.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature**: Assumed use at not more than 20°C above ambient temperature.

## 15.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

### Product (article) characteristics
Covers percentage substance in the product up to 100%.

<table>
<thead>
<tr>
<th>Physical form of product</th>
<th>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</th>
</tr>
</thead>
</table>

### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Duration</th>
<th>Covers daily exposures up to 8 hours</th>
</tr>
</thead>
</table>

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

**Temperature**: Assumed use at not more than 20°C above ambient temperature.
## 15.2.5. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

### Amount used, frequency and duration of use (or from service life)

| Duration | Covers daily exposures up to 8 hours |

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

## 15.2.6. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

### Amount used, frequency and duration of use (or from service life)

| Duration | Covers daily exposures up to 8 hours |

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure
### Temperature

Temperature : Assumes use at not more than 20°C above ambient temperature.

### 15.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

#### Product (article) characteristics

Covers percentage substance in the product up to 100%.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

#### Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

#### Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

### 15.2.8. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

#### Product (article) characteristics

Covers percentage substance in the product up to 100%.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

#### Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

#### Other conditions affecting workers exposure

SDS Number: 100000068203  136/154
15.3. Exposure estimation and reference to its source

15.3.1. Environmental release and exposure: Use of functional fluid at industrial site (ERC7)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Exposure level</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater</td>
<td>0,0232 µg/l (EUSES)</td>
<td>0,026</td>
</tr>
<tr>
<td>Sea water</td>
<td>0,0021 µg/l (EUSES)</td>
<td>0,002</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0,0554 mg/kg wet weight (EUSES)</td>
<td>0,026</td>
</tr>
<tr>
<td>Sea sediment</td>
<td>0,0051 mg/kg wet weight (EUSES)</td>
<td>0,002</td>
</tr>
<tr>
<td>Soil</td>
<td>0,0039 mg/kg wet weight (EUSES)</td>
<td>0,002</td>
</tr>
<tr>
<td>Air</td>
<td>0,230 µg/m3</td>
<td></td>
</tr>
</tbody>
</table>

Additional information on exposure estimation

Common practices vary across sites thus conservative process release estimates used.

15.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

15.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

15.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Additional information on exposure estimation

A quantitative risk assessment is not required for human health.

15.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Additional information on exposure estimation

A quantitative risk assessment is not required for human health.
### 15.3.6. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

### 15.3.7. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

### 15.3.8. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

### 15.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
ES16: ; Functional Fluids - Professional; Professional uses (SU22).

### 16.1. Title section

<table>
<thead>
<tr>
<th>Exposure Scenario name</th>
<th>Functional Fluids - Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured Short Title</td>
<td>; Functional Fluids - Professional; Professional uses (SU22).</td>
</tr>
<tr>
<td>Substance</td>
<td>dodec-1-ene</td>
</tr>
<tr>
<td>EC-No.</td>
<td>203-968-4</td>
</tr>
</tbody>
</table>

### Environment

<table>
<thead>
<tr>
<th>CS1</th>
<th>Functional Fluids - Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ERC9a, ERC9b</td>
</tr>
</tbody>
</table>

### Worker

<table>
<thead>
<tr>
<th>CS2</th>
<th>General measures applicable to all activities, General measures (skin irritants)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PROC1</td>
</tr>
<tr>
<td>CS3</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
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<td></td>
<td>PROC2</td>
</tr>
<tr>
<td>CS4</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC3</td>
</tr>
<tr>
<td>CS5</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC8a</td>
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<td>CS6</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
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<td></td>
<td>PROC9</td>
</tr>
<tr>
<td>CS7</td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td></td>
<td>PROC20</td>
</tr>
</tbody>
</table>

### 16.2. Conditions of use affecting exposure

#### 16.2.1. Control of environmental exposure: Widespread use of functional fluid (indoor) (ERC9a) / Widespread use of functional fluid (outdoor) (ERC9b)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

### Amount used, frequency and duration of use (or from service life)

- Maximum allowable site tonnage (MSafe): 18 kg/day
- Release type: Wide dispersive use
- Emission days: 300

### Technical and organisational conditions and measures

Risk from environmental exposure is driven by freshwater sediment.
### Conditions and measures related to sewage treatment plant

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>STP type</td>
<td>Municipal sewage treatment plant</td>
</tr>
<tr>
<td>STP sludge treatment</td>
<td>Prevent discharge of undissolved substance to or recover from wastewater.</td>
</tr>
<tr>
<td></td>
<td>Do not apply industrial sludge to natural soils.</td>
</tr>
<tr>
<td></td>
<td>Sewage sludge should be incinerated, contained or reclaimed.</td>
</tr>
<tr>
<td>STP effluent</td>
<td>2,000 m³/d</td>
</tr>
</tbody>
</table>

### Conditions and measures related to treatment of waste (including article waste)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste treatment</td>
<td>External treatment and disposal of waste should comply with applicable local and/or national regulations.</td>
</tr>
</tbody>
</table>

### Other conditions affecting environmental exposure

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving surface water flow</td>
<td>18,000 m³/d</td>
</tr>
<tr>
<td>Local freshwater dilution factor</td>
<td>10</td>
</tr>
<tr>
<td>Local marine water dilution factor</td>
<td>100</td>
</tr>
</tbody>
</table>

### 16.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

#### Product (article) characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covers percentage substance in the product up to 100%</td>
<td></td>
</tr>
<tr>
<td>Physical form of product</td>
<td>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</td>
</tr>
</tbody>
</table>

#### Amount used, frequency and duration of use (or from service life)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>Covers daily exposures up to 8 hours</td>
</tr>
</tbody>
</table>

#### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

#### Other conditions affecting workers exposure

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>Assumes use at not more than 20°C above ambient temperature.</td>
</tr>
</tbody>
</table>
### 16.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

<table>
<thead>
<tr>
<th>Product (article) characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covers percentage substance in the product up to 100 %.</td>
</tr>
<tr>
<td>Physical form of product</td>
</tr>
<tr>
<td>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount used, frequency and duration of use (or from service life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
</tr>
<tr>
<td>Covers daily exposures up to 8 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical and organisational conditions and measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not ingest. If swallowed then seek immediate medical assistance.</td>
</tr>
<tr>
<td>Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.</td>
</tr>
<tr>
<td>No other specific measures identified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other conditions affecting workers exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
</tr>
<tr>
<td>Assumes use at not more than 20°C above ambient temperature.</td>
</tr>
</tbody>
</table>

### 16.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

<table>
<thead>
<tr>
<th>Product (article) characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covers percentage substance in the product up to 100 %.</td>
</tr>
<tr>
<td>Physical form of product</td>
</tr>
<tr>
<td>Liquid, vapour pressure &lt; 0.5 kPa at Standard Temperature and Pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount used, frequency and duration of use (or from service life)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
</tr>
<tr>
<td>Covers daily exposures up to 8 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical and organisational conditions and measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not ingest. If swallowed then seek immediate medical assistance.</td>
</tr>
<tr>
<td>Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.</td>
</tr>
<tr>
<td>No other specific measures identified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other conditions affecting workers exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
</tr>
<tr>
<td>Assumes use at not more than 20°C above ambient</td>
</tr>
</tbody>
</table>

SDS Number:100000068203 141/154
### 16.2.5. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

**Product (article) characteristics**

Covers percentage substance in the product up to 100%.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

**Amount used, frequency and duration of use (or from service life)**

| Duration | Covers daily exposures up to 8 hours |

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

No other specific measures identified.

**Other conditions affecting workers exposure**

**Temperature**

Assumes use at not more than 20°C above ambient temperature.

### 16.2.6. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

**Product (article) characteristics**

Covers percentage substance in the product up to 100%.

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

**Amount used, frequency and duration of use (or from service life)**

| Duration | Covers daily exposures up to 8 hours |

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.

No other specific measures identified.

**Other conditions affecting workers exposure**
16.2.7. Control of worker exposure: Use of functional fluids in small devices (PROC20)

Product (article) characteristics

Covers percentage substance in the product up to 100%.

Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration: Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature: Assumes use at not more than 20°C above ambient temperature.

16.3. Exposure estimation and reference to its source

16.3.1. Environmental release and exposure: Widespread use of functional fluid (indoor) (ERC9a) / Widespread use of functional fluid (outdoor) (ERC9b)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Exposure level</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater</td>
<td>0.086 µg/l (EUSES)</td>
<td>0.096</td>
</tr>
<tr>
<td>Sea water</td>
<td>0.0084 µg/l (EUSES)</td>
<td>0.009</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0.206 mg/kg wet weight (EUSES)</td>
<td>0.096</td>
</tr>
<tr>
<td>Sea sediment</td>
<td>0.0201 mg/kg wet weight (EUSES)</td>
<td>0.009</td>
</tr>
<tr>
<td>Soil</td>
<td>0.164 mg/kg wet weight (EUSES)</td>
<td>0.094</td>
</tr>
<tr>
<td>Air</td>
<td>0.0230 µg/m3</td>
<td></td>
</tr>
</tbody>
</table>

Additional information on exposure estimation

Common practices vary across sites thus conservative process release estimates used.
16.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

**Additional information on exposure estimation**
A quantitative risk assessment is not required for human health.

16.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

**Additional information on exposure estimation**
A quantitative risk assessment is not required for human health.

16.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

**Additional information on exposure estimation**
A quantitative risk assessment is not required for human health.

16.3.5. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

**Additional information on exposure estimation**
A quantitative risk assessment is not required for human health.

16.3.6. Worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

**Additional information on exposure estimation**
A quantitative risk assessment is not required for human health.

16.3.7. Worker exposure: Use of functional fluids in small devices (PROC20)

**Additional information on exposure estimation**
A quantitative risk assessment is not required for human health.

16.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
# SAFETY DATA SHEET

## AlphaPlus® 1-DODECENE

Version 5.0

Revision Date 2019-06-24

**ES17**: Use in polymer production – industrial; Industrial uses (SU3).

### 17.1. Title section

<table>
<thead>
<tr>
<th><strong>Exposure Scenario name</strong></th>
<th>Use in polymer production – industrial</th>
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<tbody>
<tr>
<td><strong>Structured Short Title</strong></td>
<td>; Use in polymer production – industrial; Industrial uses (SU3).</td>
</tr>
<tr>
<td><strong>Substance</strong></td>
<td>dodec-1-ene</td>
</tr>
<tr>
<td></td>
<td>EC-No.: 203-968-4</td>
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</tbody>
</table>

### Environment

<table>
<thead>
<tr>
<th><strong>CS1</strong></th>
<th><strong>Use in polymer production – industrial</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Worker</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CS2</strong></th>
<th>General measures applicable to all activities, General measures (skin irritants)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CS3</strong></td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td><strong>CS4</strong></td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td><strong>CS5</strong></td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td><strong>CS6</strong></td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
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<tr>
<td><strong>CS7</strong></td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
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<td><strong>CS8</strong></td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
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<td><strong>CS9</strong></td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
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<td><strong>CS10</strong></td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
<tr>
<td><strong>CS11</strong></td>
<td>General measures applicable to all activities, General measures (skin irritants)</td>
</tr>
</tbody>
</table>

### 17.2. Conditions of use affecting exposure

#### 17.2.1. Control of environmental exposure

Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4) / Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article) (ERC6c)

### Product (article) characteristics

Covers percentage substance in the product up to 100%.

### Amount used, frequency and duration of use (or from service life)

SDS Number: 100000068203
### AlphaPlus® 1-DODECENE

<table>
<thead>
<tr>
<th>SAFETY DATA SHEET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version 5.0</td>
</tr>
<tr>
<td>Revision Date 2019-06-24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maximum allowable site tonnage (MSafe)</th>
<th>42.735 kg/day</th>
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</thead>
<tbody>
<tr>
<td>Release type</td>
<td>Continuous release</td>
</tr>
<tr>
<td>Emission days</td>
<td>300</td>
</tr>
</tbody>
</table>

#### Technical and organisational conditions and measures

Risk from environmental exposure is driven by soil.
- Air - minimum efficiency of 80 %
- Water - minimum efficiency of 96.4 %

#### Conditions and measures related to sewage treatment plant

- STP type: Municipal sewage treatment plant
- STP sludge treatment:
  - Prevent discharge of undissolved substance to or recover from wastewater.
  - Do not apply industrial sludge to natural soils.
  - Sewage sludge should be incinerated, contained or reclaimed.
- STP effluent: 2,000 m3/d

#### Conditions and measures related to treatment of waste (including article waste)

- Waste treatment: External treatment and disposal of waste should comply with applicable local and/or national regulations.

#### Other conditions affecting environmental exposure

- Receiving surface water flow: 18,000 m3/d
- Local freshwater dilution factor: 10
- Local marine water dilution factor: 100

17.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

#### Product (article) characteristics

- Covers percentage substance in the product up to 100 %.
- Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

#### Amount used, frequency and duration of use (or from service life)

- Duration: Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

- Do not ingest. If swallowed then seek immediate medical assistance.
- Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
- No other specific measures identified.
# SAFETY DATA SHEET

## AlphaPlus® 1-DODECENE

### Version 5.0

**Revision Date:** 2019-06-24

### Other conditions affecting workers exposure

| Temperature | : Assumes use at not more than 20°C above ambient temperature. |

### 17.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

### Product (article) characteristics

- Covers percentage substance in the product up to 100 %.
- Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

- Duration: Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

### Other conditions affecting workers exposure

| Temperature | : Assumes use at not more than 20°C above ambient temperature. |

### 17.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

### Product (article) characteristics

- Covers percentage substance in the product up to 100 %.
- Physical form of product: Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

### Amount used, frequency and duration of use (or from service life)

- Duration: Covers daily exposures up to 8 hours

### Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop.

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minimise exposures and to report any skin problems that may develop.
No other specific measures identified.

Other conditions affecting workers exposure

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

17.2.5. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

Amount used, frequency and duration of use (or from service life)

| Duration | Covers daily exposures up to 8 hours |

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
No other specific measures identified.

Other conditions affecting workers exposure

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

17.2.6. Control of worker exposure: Mixing or blending in batch processes (PROC5)

Product (article) characteristics

| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

Amount used, frequency and duration of use (or from service life)

| Duration | Covers daily exposures up to 8 hours |

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
No other specific measures identified.
minimise exposures and to report any skin problems that may develop.
No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

17.2.7. Control of worker exposure: Calendering operations (PROC6)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance.
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

17.2.8. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance.
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent /
**AlphaPlus® 1-DODECENE**

**Version 5.0**

**Revision Date 2019-06-24**

Minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

**17.2.9. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)**

**Product (article) characteristics**

| Covers percentage substance in the product up to 100 %. |
| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

**Amount used, frequency and duration of use (or from service life)**

| Duration | Covers daily exposures up to 8 hours |

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

**Other conditions affecting workers exposure**

| Temperature | Assumes use at not more than 20°C above ambient temperature. |

**17.2.10. Control of worker exposure: Tabletting, compression, extrusion, pelettisation, granulation (PROC14)**

**Product (article) characteristics**

| Covers percentage substance in the product up to 100 %. |
| Physical form of product | Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure |

**Amount used, frequency and duration of use (or from service life)**

| Duration | Covers daily exposures up to 8 hours |

**Technical and organisational conditions and measures**

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.
occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

17.2.11. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics

Covers percentage substance in the product up to 100%.

Physical form of product : Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure

Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Do not ingest. If swallowed then seek immediate medical assistance. Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. No other specific measures identified.

Other conditions affecting workers exposure

Temperature : Assumes use at not more than 20°C above ambient temperature.

17.3. Exposure estimation and reference to its source

17.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4) / Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article) (ERC6c)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Exposure level</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshwater</td>
<td>0.330 µg/l (EUSES)</td>
<td>0.366</td>
</tr>
<tr>
<td>Sea water</td>
<td>0.0328 µg/l (EUSES)</td>
<td>0.036</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0.789 mg/kg wet weight (EUSES)</td>
<td>0.368</td>
</tr>
<tr>
<td>Sea sediment</td>
<td>0.0784 mg/kg wet weight (EUSES)</td>
<td>0.037</td>
</tr>
<tr>
<td>Soil</td>
<td>0.815 mg/kg wet weight (EUSES)</td>
<td>0.468</td>
</tr>
<tr>
<td>Air</td>
<td>0.0111 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>
17.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

17.3.3. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

17.3.4. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

17.3.5. Worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

17.3.6. Worker exposure: Mixing or blending in batch processes (PROC5)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

17.3.7. Worker exposure: Calendering operations (PROC6)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.

17.3.8. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Additional information on exposure estimation
A quantitative risk assessment is not required for human health.
17.3.9. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

17.3.10. Worker exposure: Tabletting, compression, extrusion, peletisation, granulation (PROC14)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

17.3.11. Worker exposure: Use as laboratory reagent (PROC15)

**Additional information on exposure estimation**

A quantitative risk assessment is not required for human health.

17.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).