SAFETY DATA SHEET

OCTOPIROX

Identification of the company:
Clariant Corporation
4000 Monroe Road
Charlotte, NC, 28205
Telephone No.: +1 704 331 7000

Information of the substance/preparation:
Product Safety 1-704-331-7710
Emergency tel. number: +1 800-424-9300 CHEMTREC

Trade name: OCTOPIROX
Material number: 105273
CAS number: 68890-66-4
Synonyms: Piroctone Olamine
Primary product use: Active ingredient for cosmetics
Chemical family: piroctone olamine

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification
Skin irritation : Category 2
Serious eye damage : Category 1
Combustible dust :

GHS Label element
Hazard pictograms :

Signal word : Danger
Hazard statements : H315 Causes skin irritation.
H318 Causes serious eye damage.

Precautionary statements : Prevention:
P264 Wash skin thoroughly after handling.
P280 Wear eye protection/face protection.
P280 Wear protective gloves.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P243 Take precautionary measures against static discharge.

Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
P332 + P313 If skin irritation occurs: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Name</td>
</tr>
<tr>
<td>Piroctone Olamine</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

SECTION 4. FIRST AID MEASURES

General advice : Remove/Take off immediately all contaminated clothing.
If inhaled : Move the victim to fresh air.
Give oxygen or artificial respiration if needed.
Get immediate medical advice/attention.
Never give anything by mouth to an unconscious person.
In case of skin contact : Wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention.
In case of eye contact : Immediately flush eyes with large amounts of water for at least 15 minutes, holding lids apart to ensure flushing of the entire surface. Washing eyes within 1 minute is essential to achieve maximum effectiveness. Seek medical attention immediately.
If swallowed : IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Most important symptoms and effects, both acute and delayed : The possible symptoms known are those derived from the labelling (see section 2).
No additional symptoms are known.
Notes to physician : None known.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Water spray jet
Foam

Unsuitable extinguishing media:
- Dry powder
- Carbon dioxide (CO2)
- High volume water jet

Specific hazards during firefighting:
In case of fires, hazardous combustion gases are formed:
- Carbon monoxide (CO)
- Nitrogen oxides (NOx)

Emits toxic fumes under fire conditions. This product presents no unusual fire or explosion hazards while sealed in a shipping container. During usage, if a dust cloud is generated, organic powders have the potential to be explosive with static spark or flame initiation.

Further information:
- Fight fire remotely due to the risk of explosion.
- Risk of dust explosion.
- Exercise caution when fighting any chemical fire. Use NIOSH approved self-contained breathing apparatus and full protective clothing.

Special protective equipment for firefighters:
- Self-contained breathing apparatus

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
- Avoid dust formation.
- Wear suitable protective equipment.
- Keep away sources of ignition.
- Pre-wet material with water to avoid dust formation. Sweep or vacuum and place in sealable container for disposal. Wear protective equipment and wash thoroughly after handling.
- Flush residue with water.
- Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.

Environmental precautions:
- Do not allow to enter drains or waterways

Methods and materials for containment and cleaning up:
- Pick up mechanically. Rinse away rest with water.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion:
- Take precautionary measures against build-up of electrostatic charges, e.g. earthing during loading and off-loading operations. Keep away from sources of ignition - No smoking. Risk of dust explosion.

Advice on safe handling:
- Avoid inhalation, ingestion and contact with skin and eyes.
- Avoid dust formation.
Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Take measures to prevent the build up of electrostatic charge. Store in a dry place.

Technical measures/Precautions: Keep container closed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Engineering measures: Use adequate exhaust ventilation and/or dust collection to keep dust levels below exposure limits.

Personal protective equipment

Respiratory protection: If airborne concentrations pose a health hazard, become irritating or exceed recommended limits, use a NIOSH approved respirator in accordance with OSHA respiratory protection requirements under 29 CFR 1910.134

Hand protection

Remarks: Butyl Rubber, PVC Or Neoprene.

Eye protection: Tightly fitting safety goggles
Face-shield

Skin and body protection: Protective clothing to minimize skin contact should be worn. Chemically resistant safety shoes. Wash contaminated clothing with soap and water and dry before reuse. Safety showers and eyewash stations should be provided in all areas where this material is handled.

Protective measures: Avoid contact with skin and eyes.
Do not breathe dust.

Hygiene measures: Wash hands before breaks and at the end of workday.
Use protective skin cream before handling the product.
Take off immediately all contaminated clothing and wash it before reuse.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: powder

Colour: white to slightly yellow

Odour: characteristic
Odour Threshold : not tested.

pH : 8 - 10, Concentration: 10 g/l (20 °C) Suspension in water

Melting point : 130 - 135 °C
     Decomposition

Boiling point : Decomposes below the boiling point.

Flash point : Not applicable

Evaporation rate : Not applicable

Flammability (solid, gas) : The product is not flammable.
     Method: Directive 84/449/EEC, A.10

Upper explosion limit : Not applicable

Lower explosion limit : Not applicable

Vapour pressure : 0.00017 Pa (20 °C)
     Method: OECD Test Guideline 104

Relative vapour density : Not applicable

Relative density : 1.10 (21.5 °C)
     Method: OECD Test Guideline 109

Density : not tested.

Bulk density : 400 kg/m3

Water solubility : approx. 400 mg/l Determined in double-distilled water. (20 °C)
     Method: OECD Test Guideline 105

     approx. 30 mg/l Measured at pH 7 (20 °C)
     pH: 7
     Method: OECD Test Guideline 105

     approx. 20 mg/l Measured at pH 4 (20 °C)
     pH: 4
     Method: OECD Test Guideline 105

     approx. 475 mg/l Measured at pH 9 (20 °C)
     pH: 9
     Method: OECD Test Guideline 105
Solubility in other solvents: 37.5 g/l
(20 °C)
Solvent: 1-octanol
Method: OECD Test Guideline 105

Partition coefficient: n-octanol/water
log Pow: 0.8
Method: Calculated by Syracuse.

log Pow: 1.9 (20 °C)
Calculated on the basis of measured solubilities in water at pH 9 and in n-octanol.

log Pow: 3.1 (20 °C)
Calculated on the basis of measured solubilities in water at pH 7 and in n-octanol.

log Pow: 3.3 (20 °C)
Calculated on the basis of measured solubilities in water at pH 4 and n-octanol.

log Pow: 3.9 (20 °C)
Method: OECD Test Guideline 107
Measured at pH 4

Auto-ignition temperature: Not applicable

Decomposition temperature: approx. 240 °C

Viscosity
Viscosity, dynamic: Not applicable

Viscosity, kinematic: not tested.

Explosive properties: Not explosive

not oxidizing

Impact sensitivity: Not impact sensitive.

SECTION 10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: The product is not a dust explosion risk as supplied; however the build-up of fine dust can lead to a risk of dust explosions.

Conditions to avoid: None known.
SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye contact
Skin contact
Inhalation

Acute toxicity

Product:

<table>
<thead>
<tr>
<th>Route</th>
<th>Value</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50 (Rat): 8,100 mg/kg</td>
<td>OECD Test Guideline 401</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>LC50 (Rat): &gt; 4.9 mg/l</td>
<td>OECD Test Guideline 403</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>LD50 (Rat): &gt; 2,000 mg/kg</td>
<td>OECD Test Guideline 402</td>
</tr>
</tbody>
</table>

Components:

Piroctone Olamine:

<table>
<thead>
<tr>
<th>Route</th>
<th>Value</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50 (Rat, female): 8,100 mg/kg</td>
<td>OECD Test Guideline 401</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GLP: no</td>
</tr>
<tr>
<td>LD50 (Dog, male and female):</td>
<td>&gt; 4,000 mg/kg</td>
<td>OECD Test Guideline 401</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GLP: no</td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>LC50 (Rat): &gt; 4.9 mg/l</td>
<td>OECD Test Guideline 403</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exposure time: 14 d</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Test atmosphere: dust/mist</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Method: OECD Test Guideline 403</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GLP: yes</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>LD50 (Rats (Male/Female)): &gt; 2,000 mg/kg</td>
<td>OECD Test Guideline 402</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GLP: yes</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation

Product:

Species: Rabbit
Method: OECD Test Guideline 404
Result: irritating

Components:
Piroctone Olamine:
Species: Rabbit
Exposure time: 4 h
Method: OECD Test Guideline 404
Result: irritating
GLP: yes

serious eye damage/eye irritation

Product:
Species: rabbit eye
Result: Risk of serious damage to eyes.
Method: FED. Reg., Vol. 37, No. 38, 1972

Components:
Piroctone Olamine:
Species: rabbit eye
Result: strongly irritant
Exposure time: 5 min - 24 h
Method: FDA guideline
GLP: no

Respiratory or skin sensitisation

Product:
Species: Guinea pig
Method: OECD Test Guideline 406
Result: non-sensitizing

Components:
Piroctone Olamine:
Test Type: Buehler Test
Species: Guinea pig
Method: OECD Test Guideline 406
Result: non-sensitizing
GLP: no

Test Type: Guinea pig maximization test
Species: Guinea pig
Method: Magnusson/Kligman
Result: non-sensitizing
GLP: no

Test Type: Patch Test 24 Hrs.
Species: Humans
Method: tests on human beings
Remarks: Patch test on human volunteers did not demonstrate sensitisation properties.

Germ cell mutagenicity

Product:
SAFETY DATA SHEET

OCTOPIROX

Substance key: SXR015171  Revision Date: 05/12/2015
Version : 6 - 1 / USA  Date of printing :05/12/2015

Germ cell mutagenicity -
Assessment

Not mutagenic in Ames Test

In vivo Micronucleus negative.

In vivo cytogenetic negative.

No information available.

Components:
Piroctone Olamine:
Genotoxicity in vitro

Test Type: HGPRT assay
Species: V79 cells (embryonic lung fibroblasts) of the Chinese hamster
Concentration: 0.05 - 250 µg/ml
Metabolic activation: with and without
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Test Type: Ames test
Species: Salmonella typhimurium
Concentration: 2 - 500 µg/plate
Metabolic activation: with and without
Method: OECD Test Guideline 471
Result: negative
GLP: no

Genotoxicity in vivo

Test Type: Chromosome Aberration Test
Species: Chinese hamster (male and female)
Cell type: Bone marrow cells
Application Route: oral (gavage)
Exposure time: single application
Dose: 3500 mg/kg
Method: OECD Test Guideline 475
Result: negative
GLP: no

Test Type: Micronucleus test
Species: Mouse (male)
Strain: ICL-ICR
Cell type: Bone marrow cells
Application Route: Intraperitoneal injection
Exposure time: <= 4 d
Dose: 15,6 - 31,3 - 62,5 - 125 mg/kg
Method: OECD Test Guideline 474
Result: negative
GLP: no

Germ cell mutagenicity -
Assessment

It is concluded that the product is not mutagenic based on evaluation of several mutagenicity tests.
Carcinogenicity

Product:
Carcinogenicity - Assessment: No information available.

Components:
Piroctone Olamine:
Carcinogenicity - Assessment: No evidence of carcinogenicity in animal studies.

IARC Not listed
OSHA Not listed
NTP Not listed

Reproductive toxicity

Product:
Reproductive toxicity - Assessment: No information available.

No information available.

Components:
Piroctone Olamine:
Effects on fertility:
Test Type: Fertility
Species: Rat
Sex: male and female
Dose: 20 - 50 - 100 - 500 mg/kg
Exposure time: 70 d
Frequency of Treatment: daily
9 weeks
2 weeks
Group: yes
NOAEL: > 100 mg/kg,
Method: Other
GLP: yes

Effects on foetal development:
Species: Rabbit, female
Application Route: oral (gavage)
Exposure time: 13 d
Dose: 16 - 32 - 63 mg/kg
Group: yes
> 63 mg/kg
> 63 mg/kg
Number of exposures: daily
Test period: until day 29 of pregnancy
Method: OECD Test Guideline 414
GLP: yes
Reproductive toxicity - Assessment : No teratogenic effects to be expected.

No reproductive toxicity to be expected.

STOT - single exposure

Product:
Remarks: not tested.

Components:
Piroctone Olamine:
Remarks: Based on available data, the classification criteria are not met.

STOT - repeated exposure

Product:
Remarks: not tested.

Components:
Piroctone Olamine:
Remarks: Based on available data, the classification criteria are not met.

Repeated dose toxicity

Product:
Species: Rat
NOAEL: 100 mg/kg
Application Route: Oral
Exposure time: 90 d
Method: OECD Test Guideline 408

Components:
Piroctone Olamine:
Species: Rat, male and female
NOAEL: 100 - 500 mg/kg
Application Route: subcutaneous
Exposure time: 5 Wochen
Number of exposures: daily
Dose: 100 - 500 - 2000 mg/kg
Subsequent observation period: 2 Wochen
Method: OECD Test Guideline 410
GLP: no

Species: Rat, male and female
NOAEL: 100 mg/kg
Application Route: oral (gavage)
Exposure time: 90 Tage
Number of exposures: daily, 5 days per week
Aspiration toxicity

Components:

Piroctone Olamine:
No aspiration toxicity classification

Experience with human exposure

Product:
General Information: The possible symptoms known are those derived from the labelling (see section 2).

Components:

Piroctone Olamine:
General Information: When used as intended, no effects to health are expected.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:
Toxicity to fish: LC50 (Danio rerio (zebra fish)): 1.89 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: River-water test

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 1.8 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: River-water test

NOEC (Daphnia magna (Water flea)): 0.128 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211
Remarks: River-water test

Toxicity to algae: EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): 6.7 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: River-water test

EC10 (Desmodesmus subspicatus (Scenedesmus subspicatus)): 6.31 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: River-water test

Toxicity to bacteria : EC50: 583 mg/l
Method: OECD Test Guideline 209

Toxicity to soil dwelling organisms : Test Type: artificial soil
NOEC (Eisenia fetida (earthworms)): >= 1,000 mg/kg
Exposure time: 14 d
Method: OECD Test Guideline 207

Test Type: artificial soil
NOEC (Eisenia fetida (earthworms)): >= 1,000 mg/kg
Exposure time: 28 d
Method: OECD Test Guideline 222

Components:
Piroctone Olamine:
Toxicity to fish : LC50 (Danio rerio (zebra fish)): 1.89 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203
GLP: yes
Remarks: The details of the toxic effect relate to the nominal concentration.

NOEC (Danio rerio (zebra fish)): 0.89 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203
GLP: yes
Remarks: The details of the toxic effect relate to the nominal concentration.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.8 mg/l
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes
Remarks: The details of the toxic effect relate to the nominal concentration.

NOEC (Daphnia magna (Water flea)): 0.889 mg/l
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes
Remarks: The details of the toxic effect relate to the nominal concentration.

LOEC (Daphnia magna (Water flea)): 1.58 mg/l
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes
Remarks: The details of the toxic effect relate to the nominal concentration.

Toxicity to algae:
EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): 10.8 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): 6.7 mg/l
End point: Biomass
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

Toxicity to fish (Chronic toxicity):
Remarks: not tested.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
EC50 (Daphnia magna (Water flea)): 0.324 - 1.255 mg/l
Exposure time: 21 d
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 211
GLP: yes

NOEC (Daphnia magna (Water flea)): 0.128 mg/l
Exposure time: 21 d
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 211
GLP: yes

LOEC (Daphnia magna (Water flea)): 0.324 mg/l
Exposure time: 21 d
End point: Reproduction rate
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 211
GLP: yes

Toxicity to bacteria:
EC50 (activated sludge of a predominantly domestic sewage): 538 mg/l
End point: Bacteria toxicity (growth inhibition)
Exposure time: 3 h
Test Type: aquatic
Method: OECD Test Guideline 209
GLP: yes

Toxicity to soil dwelling organisms:
Test Type: artificial soil
NOEC (Eisenia fetida (earthworms)): > 1,000 mg/kg
Exposure time: 56 d
End point: Reproduction
Method: OECD Test Guideline 222
GLP: yes

Plant toxicity:
NOEC (Avena sativa (oats)): 500 mg/kg
Method: OECD Guide-line 208
GLP: yes

NOEC (Brassica napus): 1,000 mg/kg
Method: OECD Guide-line 208
GLP: yes

NOEC (Dicotyledonae: Glycine max (soybean)): 500 mg/kg
Method: OECD Guide-line 208
GLP: yes

Sediment toxicity:
NOEC (Nematode Caenorhabditis elegans): 250 mg/kg dry weight (d.w.)
Duration: 28 d
Sediment: artificial soil
Test substance: artificial soil
GLP: yes

NOEC (Lumbriculus variegatus (Worm)): 250 mg/kg dry weight (d.w.)
Duration: 28 d
Sediment: artificial soil
Test substance: artificial soil
Method: OECD 225
GLP: yes

Toxicity to terrestrial organisms:
Remarks: not tested.
Persistence and degradability

Product:

Biodegradability:  Exposure time: 15 d
Remarks: The product can be degraded by abiotic (e.g. chemical or photolytic) processes.

Biodegradation: > 80 %
Method: OECD Test Guideline 302B
Remarks: Elimination

Biodegradation: 96 %
Exposure time: 28 d
Method: OECD 303A
Remarks: Elimination

Biodegradation: 14 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Chemical Oxygen Demand (COD): 2,030 mg/g

Photodegradation:

Components:

Piroctone Olamine:
Biodegradability: aerobic
Inoculum: activated sludge, adapted
Concentration: 16.6 mg/l
CO2 formation in % of theoretical value
Result: Not readily biodegradable.
Biodegradation: 6 %
Exposure time: 28 d
Method: OECD Test Guideline 301B
GLP: yes

aerobic
Inoculum: activated sludge, non-adapted
Concentration: 20 µg/l
DOC decrease
Result: Readily biodegradable
Biodegradation: 96.2 %
Exposure time: 24 d
Method: OECD 303A
GLP: yes

Physico-chemical removability: Remarks: Can be eliminated from water by precipitation.
Remarks: Biodegradable

Stability in water: Test Type: abiotic
Remarks: Hydrolyses slowly.

Photodegradation:
- Test Type: water
  - Light source: Xenon lamp
  - Light spectrum: 290 - 800 nm
  - Rate constant: 3.1 1/h
  - Rate constant: 50 % Degradation half life: 0.22 h
  - Method: OECD Test Guideline 316
  - GLP: yes
  - Remarks: pH4

- Test Type: water
  - Light source: Xenon lamp
  - Light spectrum: 290 - 800 nm
  - Rate constant: 1.25 1/h
  - Rate constant: 50 % Degradation half life: 0.55 h
  - Method: OECD Test Guideline 316
  - GLP: yes
  - Remarks: pH9

- Test Type: air
  - Remarks: Decomposes rapidly in contact with light.

- Test Type: Soil
  - Remarks: Decomposes rapidly in contact with light.

Bioaccumulative potential

**Product:**
- Bioaccumulation: Remarks: not tested.

**Components:**
- Piroctone Olamine:
  - Bioaccumulation: Remarks: Due to the low logPow bioaccumulation is not expected

  - Partition coefficient: n-octanol/water: log Pow: 3.86 (20.5 °C)
    - pH: 4
    - Method: OECD Test Guideline 107
    - GLP: yes

Mobility in soil

**Product:**
- Distribution among environmental compartments: Remarks: not tested.

**Components:**
- Piroctone Olamine:
  - Distribution among environmental compartments: adsorption
    - Medium: water - soil
log Koc: 3 - 5.4  
Method: OECD Test Guideline 106

**Other adverse effects**

**Product:**
Environmental fate and pathways  
Remarks: no data available

Results of PBT and vPvB assessment  
Remarks: no data available

Additional ecological information  
Remarks: no data available

**Components:**

**Piroctone Olamine:**
Environmental fate and pathways  
Remarks: not available

Results of PBT and vPvB assessment  
Remarks: The substance does not meet the criteria for PBT or vPvB substance.

Additional ecological information  
The product should not be allowed to enter drains, water courses or the soil.

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**SECTION 13. DISPOSAL CONSIDERATIONS**

**Disposal methods**

RCRA - Resource Conservation and Recovery Authorization Act  
Waste Code  
Remarks: No -- Not as sold.

Waste from residues  
Remarks: Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities.

Contaminated packaging  
Remarks: Packaging that cannot be cleaned should be disposed of as product waste

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**SECTION 14. TRANSPORT INFORMATION**

**DOT**  
not restricted

**IATA**  
not restricted

**IMDG**  
not restricted
SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act
CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.
SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Acute Health Hazard
SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 : This product does not contain any toxic chemical listed under Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986.

Clean Water Act
Contains no known priority pollutants at concentrations greater than 0.1%.

The components of this product are reported in the following inventories:
TSCA : The product is not listed in TSCA. However, it is excluded from the regulation because it is a cosmetic raw material and it is permitted for that use.

Inventories
AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

SECTION 16. OTHER INFORMATION

Further information

Observe national and local legal requirements
This product is not listed in the Toxic Substances Control Act (TSCA) inventory. The product is thus sold under the restriction that it only for use in research and development. This product must be used under the supervision of a technically qualified individual. Observe all necessary precautions for handling powders as fine powder may present dust explosion hazard. ACGIH Threshold Limit Values (TLV): inhalable particulate = 10 mg/m³; respirable particulate = 3 mg/m³. OSHA Permissible Exposure Limit (PEL) for particulate matter: total dust = 15 mg/m³; respirable fraction = 5 mg/m³

Revision Date : 05/12/2015
This information is supplied under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, and is offered in good faith based on data available to us that we believe to be true and accurate. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable to the material. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate for that use. No warranty, express or implied, is made regarding the accuracy of this data, the hazards connected with the use of the material, or the results to be obtained from the use thereof. We assume no responsibility for damage or injury from the use of the product described herein. Data provided here are typical and not intended for use as product specifications.

US / USA