

OCTOPIROX

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Substance key: SXR015171
Version : 8 - 3 / USA

Revision Date: 11/29/2023
Date of printing :02/08/2024

SECTION 1. IDENTIFICATION

Identification of the company:	Clariant Corporation 500 East Morehead Street Charlotte, NC, 28202 Telephone No.: +1 704 331 7000
Information of the substance/preparation:	Product Stewardship, +1-704-331-7710 e-mail: SDS.NORAM@clariant.com
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 in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Combustible dust

Skin irritation : Category 2

Serious eye damage : Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : May form combustible dust concentrations in air.
H315 Causes skin irritation.
H318 Causes serious eye damage.

Precautionary statements : **Prevention:**
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ eye protection/ face protection.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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P243 Take precautionary measures against static discharge.
P233 Keep container tightly closed.

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/ doctor.

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

Substance / Mixture : Substance
Substance name : piroctone olamine
CAS-No. : 68890-66-4

Components

Chemical name	CAS-No.	Concentration (% w/w)
Piroctone Olamine	68890-66-4	90 - 100

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

SECTION 4. FIRST AID MEASURES

General advice : Get medical advice/ attention if you feel unwell.
Remove/ Take off immediately all contaminated clothing.

If inhaled : If inhaled, remove to fresh air.
Get medical advice/ attention.

In case of skin contact : Wash off immediately with plenty of water.
Consult a physician.

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 do not induce vomiting, seek medical advice and show safety datasheet or label

Most important symptoms and effects, both acute and delayed : irritant effects
corrosive effects
Causes skin irritation.

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Causes serious eye damage.

Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURESSuitable extinguishing media : Water spray jet
FoamUnsuitable extinguishing media : Dry powder
Carbon dioxide (CO₂)
High volume water jetSpecific hazards during firefighting : In case of fires, hazardous combustion gases are formed:
Carbon monoxide (CO)
Nitrogen oxides (NO_x)

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 MEASURESPersonal 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

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- 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.
- Conditions for safe storage : Keep only in the original container.
Keep container tightly closed in a cool, well-ventilated place.
- Further information on storage conditions : Keep container closed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

- Engineering measures** : A system of local and/or general exhaust is recommended where employee exposures are at or above Occupational Exposure Limits (OEL).

Personal protective equipment

- Respiratory protection : not required under normal use
In the case of dust or aerosol formation use respirator with an approved filter.
Suitable mask with particle filter P3 (European Norm 143)
Applicable national Regulations must be observed. Take note of the limitations regarding wear-time, in conjunction with the Regulations for the use of Respiratory Protective Equipment.
- Hand protection
Remarks : Butyl Rubber, PVC Or Neoprene.
- Eye protection : Face-shield
Chemical splash goggles with 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.
Impervious protective clothing and chemically resistant footwear should be worn to minimize contact.
- Protective measures : Avoid contact with skin and eyes.

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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

pH : 8.5 - 10 (68 °F / 20 °C)
Concentration: 10 g/l
Suspension in water

Melting point : 266 - 275 °F / 130 - 135 °C
Decomposition

Boiling point : Decomposes below the boiling point.

Flash point : Not applicable

Flammability (solid, gas) : The product is not flammable.

Burning rate : approx. 2.17 mm/s
GLP: no

Self-ignition : Method: wire basket
The substance or mixture is not classified as self heating.

Burning number : 2
Short flaring up without spreading

Upper explosion limit / upper flammability limit : Not applicable

Lower explosion limit / Lower flammability limit : Not applicable

Vapour pressure : 0.00017 Pa (68 °F / 20 °C)
Method: OECD Test Guideline 104

Relative density : 1.10 (70.7 °F / 21.5 °C)
Method: OECD Test Guideline 109

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Density	:	not tested.
Bulk density	:	400 kg/m ³
Solubility(ies)	:	
Water solubility	:	approx. 400 mg/l (68 °F / 20 °C) Method: OECD Test Guideline 105
	:	approx. 30 mg/l (68 °F / 20 °C) pH: 7 Method: OECD Test Guideline 105
	:	approx. 20 mg/l (68 °F / 20 °C) pH: 4 Method: OECD Test Guideline 105
	:	approx. 475 mg/l (68 °F / 20 °C) pH: 9 Method: OECD Test Guideline 105
Solubility in other solvents	:	37.5 g/l (68 °F / 20 °C) Solvent: 1-octanol Method: OECD Test Guideline 105
Partition coefficient: n-octanol/water	:	log Pow: 1.9 (68 °F / 20 °C) pH: 9 Data relate to solvent
	:	log Pow: 3.1 (68 °F / 20 °C) pH: 7 Data relate to solvent
	:	log Pow: 3.3 (68 °F / 20 °C) pH: 4 Data relate to solvent
	:	log Pow: 3.9 (68 °F / 20 °C) pH: 4 Method: OECD Test Guideline 107
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	approx. 464 °F / 240 °C Heating rate: 10 K/min
Viscosity	:	
Viscosity, dynamic	:	Not applicable
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not explosive

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Oxidizing properties	:	not oxidizing
Impact sensitivity	:	Not impact sensitive.
Dust deflagration index (Kst)	:	290 m.b_/s
Dust explosion class	:	St2
Metal corrosion rate	:	Not applicable
Minimum ignition energy	:	> 3 - < 10 mJ Method: VDI 2263 "Dust fires and explosions; Danger, Evaluation, Protection measures" with inductive electrical resistance > 10 - < 30 mJ Method: VDI 2263 "Dust fires and explosions; Danger, Evaluation, Protection measures" without inductive electrical resistance

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.
Incompatible materials	:	not known
Hazardous decomposition products	:	No decomposition if stored and applied as directed.

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Eye contact
Skin contact
Inhalation

Acute toxicity**Product:**

Acute oral toxicity	:	Remarks: not tested.
Acute inhalation toxicity	:	Remarks: not tested.

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Acute dermal toxicity : Remarks: not tested.

Components:**Piroctone Olamine:**Acute oral toxicity : LD50 (Rat, female): 8,100 mg/kg
Method: OECD Test Guideline 401
GLP: no
Remarks: No significant adverse effects were reportedLD50 (Dog, male and female): > 4,000 mg/kg
Method: OECD Test Guideline 401
GLP: noAcute inhalation toxicity : LC50 (Rat, male and female): > 4.9 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: yes
Assessment: The substance or mixture has no acute inhalation toxicityAcute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Assessment: The substance or mixture has no acute dermal toxicity**Skin corrosion/irritation****Product:**

Remarks : not tested.

Components:**Piroctone Olamine:**Species : Rabbit
Exposure time : 4 h
Method : OECD Test Guideline 404
Result : Irritating to skin.
GLP : yes**Serious eye damage/eye irritation****Product:**

Remarks : not tested.

Components:**Piroctone Olamine:**Species : Rabbit
Result : Risk of serious damage to eyes.

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Exposure time : 5 min - 24 h
Method : Other
GLP : no

Respiratory or skin sensitisation**Product:**

Remarks : not tested.

Components:**Piroctone Olamine:**

Test Type : Buehler Test
Exposure routes : Dermal
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Not a skin sensitizer.
GLP : no

Test Type : Guinea pig maximization test
Species : Guinea pig
Method : Magnusson/Kligman
Result : Not a skin sensitizer.
GLP : no

Test Type : Patch Test 24 Hrs.
Species : Humans
Method : tests on human beings

Assessment : Causes skin irritation., Causes serious eye damage.

Germ cell mutagenicity**Product:**

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

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Test Type: In vitro gene mutation study in mammalian cells
 Test system: Chinese hamster lung cells
 Concentration: 0,05 - 250 µg/ml
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 476
 Result: negative
 GLP: yes

Genotoxicity in vivo : Test Type: In vivo micronucleus test
 Species: Mouse (male)
 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

Test Type: Cytogenetic assay
 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: yes

Germ cell mutagenicity - Assessment : In vivo tests did not show mutagenic effects, In vitro tests did not show mutagenic effects

Carcinogenicity**Product:**

Carcinogenicity - Assessment : No information available.

Components:**Piroctone Olamine:**

Carcinogenicity - Assessment : No information available.

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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Reproductive toxicity**Product:**

Reproductive toxicity - Assessment : No information available.

No information available.

Components:**Piroctone Olamine:**Effects on fertility : Test Type: Fertility
Species: Rat, male and female
Strain: Sprague-Dawley
Application Route: Subcutaneous
Dose: 0 - 20 - 50 - 100 - 500 mg/kg
Duration of Single Treatment: > 63 d
General Toxicity - Parent: NOAEL: >= 100 mg/kg body weight
General Toxicity F1: NOAEL: >= 500 mg/kg body weight
Method: Other
GLP: yesEffects on foetal development : Test Type: Pre-natal
Species: Rabbit, female
Application Route: oral (gavage)
Dose: 16 - 32 - 63 mg/kg
Duration of Single Treatment: 12 d
Frequency of Treatment: 1 daily
General Toxicity Maternal: NOEL: > 63 mg/kg body weight
Teratogenicity: NOEL: > 63 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

STOT - single exposure**Product:**

Remarks : not tested.

Components:**Piroctone Olamine:**

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure**Product:**

Remarks : not tested.

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Components:**Piroctone Olamine:**

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity**Product:**

Remarks : not tested.

Components:**Piroctone Olamine:**

Species : Rat, male and female
NOAEL : ≥ 100 mg/kg bw/day
Application Route : oral (gavage)
Exposure time : 90 d
Number of exposures : daily, 5 days per week
Dose : 40 - 100 - 250 mg/kg
Control Group : yes
Method : OECD Test Guideline 408
GLP : No information available.

Species : Dog, male and female
NOEL : ≥ 100 mg/kg bw/day
Application Route : oral (feed)
Exposure time : 90 d
Number of exposures : daily
Dose : 16 - 40 - 100 mg/kg
Control Group : yes
Method : OECD Test Guideline 409
GLP : no

Species : Rat, male and female
NOEL : ≥ 100 mg/kg bw/day
Application Route : Subcutaneous
Exposure time : 5 wk
Number of exposures : daily
Dose : 100 - 500 - 2000 mg/kg
Control Group : yes
Subsequent observation period : 2 Wochen
Method : OECD Test Guideline 410
GLP : no

Repeated dose toxicity - Assessment : Causes skin irritation., Causes serious eye damage.

Aspiration toxicity**Product:**

no data available

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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).

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Product:**

Toxicity to fish : Remarks: not tested.

Toxicity to daphnia and other aquatic invertebrates : Remarks: not tested.

Toxicity to algae/aquatic plants : Remarks: not tested.

Toxicity to microorganisms : Remarks: not tested.

Ecotoxicology Assessment

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

Components:**Piroctone Olamine:**Toxicity to fish : LC50 (Danio rerio (zebra fish)): 1.89 mg/l
End point: mortality
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 203
GLP: yesNOEC (Danio rerio (zebra fish)): 0.89 mg/l
End point: mortality
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 203
GLP: yesToxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.8 mg/l
End point: Immobilization

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	Exposure time: 48 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes
	NOEC (Daphnia magna (Water flea)): 0.889 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	: ErC50 (Desmodesmus subspicatus (green algae)): 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
	ErC10 (Desmodesmus subspicatus (green algae)): 6.3 mg/l End point: Growth rate 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)	: NOEC (Daphnia magna (Water flea)): 0.128 mg/l End point: Reproduction rate Exposure time: 21 d Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 211 GLP: yes
	EC50 (Daphnia magna (Water flea)): 0.324 - 1.255 mg/l End point: Reproduction rate Exposure time: 21 d Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 211 GLP: yes
Toxicity to microorganisms	: EC50 (activated sludge): 538 mg/l End point: Bacteria toxicity (growth inhibition) Exposure time: 3 h Test Type: static test Method: OECD Test Guideline 209

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	GLP: yes
Toxicity to soil dwelling organisms	: Test Type: artificial soil NOEC (Eisenia fetida (earthworms)): \geq 1,000 mg/kg Exposure time: 56 d End point: Reproduction Method: OECD Test Guideline 222 GLP: yes
	Test Type: artificial soil NOEC (Folsomia candida): 250 mg/kg Exposure time: 28 d End point: mortality Method: ISO 11267 GLP: yes
Plant toxicity	: NOEC: 500 mg/kg End point: Growth Test period: 21 d Species: Avena sativa (oats) Analytical monitoring: no Method: OECD Guide-line 208 GLP: yes
	NOEC: 1,000 mg/kg End point: Growth Test period: 21 d Species: Brassica napus Analytical monitoring: no Method: OECD Guide-line 208 GLP: yes
	NOEC: 500 mg/kg End point: Growth Test period: 21 d Species: Glycine max (G. soja) Analytical monitoring: no Method: OECD Guide-line 208 GLP: yes
Sediment toxicity	: NOEC (Nematode Caenorhabditis elegans): 250 mg/kg dry weight (d.w.) Analytical monitoring: no Duration: 96 h Sediment: Artificial sediment Method: Draft ISO/DIS 10872 (2008) GLP: yes
	NOEC (Lumbriculus variegatus (Worm)): 250 mg/kg dry weight (d.w.) Analytical monitoring: yes Duration: 28 d Sediment: Artificial sediment Method: OECD 225

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GLP: yes

Ecotoxicology Assessment

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

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: EliminationBiodegradation: 96 %
Exposure time: 28 d
Method: OECD Test Guideline 303A
Remarks: EliminationBiodegradation: 14 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

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

Components:**Piroctone Olamine:**Biodegradability : aerobic
Inoculum: activated sludge
Concentration: 16.6 mg/l
Carbon dioxide (CO₂)
Result: Not readily biodegradable.
Biodegradation: 6 %
Exposure time: 28 d
Method: OECD Test Guideline 301B
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

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Rate constant: 3,1 1/h
Degradation (direct photolysis): 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
Degradation (direct photolysis): 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 (68.9 °F / 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

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Other adverse effects**Product:**

Environmental fate and pathways : Remarks: no data available

Additional ecological information : no data available

Components:**Piroctone Olamine:**

Environmental fate and pathways : not available

Results of PBT and vPvB assessment : The substance is not identified as a PBT or as a vPvB substance.

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

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

RCRA - Resource Conservation and Recovery Authorization Act : This product, if discarded as sold, is not a Federal RCRA hazardous waste.

Waste Code : NONE

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

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

SECTION 14. TRANSPORT INFORMATION

DOT not restricted

IATA not restricted

IMDG not restricted

SECTION 15. REGULATORY INFORMATION**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.

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SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Combustible dust
Skin corrosion or irritation
Serious eye damage or eye irritation

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCOMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

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.

SECTION 16. OTHER INFORMATION**Further information**

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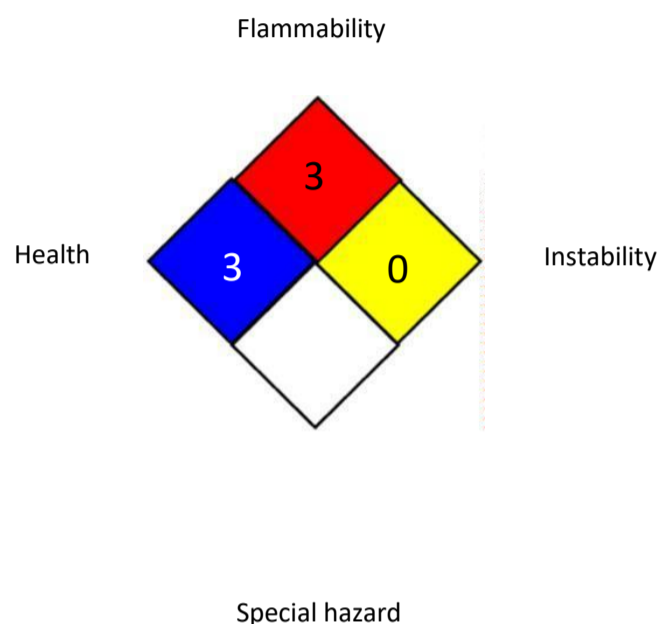
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NFPA 704:



Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United

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Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods;
vPvB - Very Persistent and Very Bioaccumulative

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

For additional information, contact Product Stewardship.

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