Substance key: 000000131484	Revision Date: 06/02/2015
Version : 1 - 21 / USA	Date of printing :08/17/2015

SECTION 1. IDENTIFICATION

Identification of the company:	Clariant Produkte (Deutschland) GmbH Frankfurt am Main, 65926 Telephone No.: +49 69 305 18000 **Information of the substance/preparation:** Product Safety 1-704-331-7710 **Emergency tel. number:** +1 800-424-9300 CHEMTREC

Trade name:	**EXOLIT OP 1312**
Material number:	204969
Synonyms:	EXOLIT OP 1312 (LV)
Primary product use:	Flame retardants
Chemical family:	mixture of flame retardants

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Combustible dust :

Reproductive toxicity : Category 2

GHS Label element

Hazard pictograms :

Signal word : Warning

Hazard statements : H361 Suspected of damaging fertility or the unborn child.
May form combustible dust concentrations in air

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243 Take precautionary measures against static discharge.
P233 Keep container tightly closed.
Response:
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture • Mixture

Hazardous components

Chemical Name	CAS-No.	Concentration (%)
Hexaboron dizinc undecaoxide	12767-90-7	1 - 5

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.

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 : Flush eyes with water at least 15 minutes. Get medical attention if eye irritation develops or persists.

If swallowed : If swallowed, DO NOT induce vomiting.
Do not give anything to drink.
Call a physician immediately.

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	:	Carbon dioxide (CO2) Dry powder
Specific hazards during firefighting	:	In case of fires, hazardous combustion gases are formed: Carbon monoxide (CO) Carbon dioxide (CO2) Hydrogen cyanide (hydrocyanic acid) Phosphorus oxides (eg Phosphorus pentoxide) Burning produces noxious and toxic fumes.
Further information	:	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. Keep away sources of ignition. Use respiratory protection if exposed to vapours/dust/aerosols. Wear suitable protective clothing. Wearing appropriate personal protective equipment, contain spill and collect into a suitable container. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.
Environmental precautions	:	The product should not be allowed to enter drains, water courses or the soil.
Methods and materials for containment and cleaning up	:	Take up mechanically Dispose of absorbed material in accordance with the regulations. Avoid dust formation. Take measures to prevent the build up of electrostatic charge. Risk of dust explosion.

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 sources of ignition. Dust can form an explosive mixture in air.
Advice on safe handling	:	Avoid dust formation. Keep away from sources of ignition. Lead off electrostatic charges. Avoid inhalation, ingestion and contact with skin and eyes.

Wash thoroughly after handling.

Conditions for safe storage	:	Protect from moisture.
Technical measures/Precautions	:	Store in original container. Keep container tightly closed. Store in a cool, dry, well-ventilated area.
Materials to avoid	:	Keep away from flammable substances.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Personal protective equipment

Respiratory protection	:	Use NIOSH/MSHA approved respirators following manufacturer's recommendations where dust or fume may be generated.
Hand protection Remarks	:	Butyl Rubber, PVC Or Neoprene.
Eye protection	:	Safety glasses or chemical splash goggles.
Skin and body protection	:	Wear suitable protective equipment.
Protective measures	:	Observe the usual precautions for handling chemicals. 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	:	solid
Colour	:	white
Odour	:	not specified
Odour Threshold	:	Not tested
pH	:	4 Concentration: 100 g/l (20 ℃)
Melting point/range	:	Decomposes before melting.

Boiling point/boiling range	:	Not applicable Decomposes below the boiling point.
Flash point	:	Not applicable
Evaporation rate	:	no data available
Flammability (solid, gas)	:	does not ignite Method: Flammability (solids)
Upper explosion limit	:	no data available
Lower explosion limit	:	no data available
Combustion number :		BZ2 Short flaring up without spreading (20 ℃) Method : VDI 2263-1 BZ2 Short flaring up without spreading (100 ℃) Method : VDI 2263-1
Vapour pressure	:	Not applicable
Relative vapour density	:	no data available
Relative density	:	no data available
Density	:	1.6 g/cm3 (20 ℃)
Solubility(ies) Water solubility	:	< 10 g/l (20 ℃)
Partition coefficient: n-octanol/water	:	not determined
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	> 260 ℃ Heating rate : 3 K/min Method: DTA The substance or mixture is not classified self-reactive.
Viscosity Viscosity, dynamic	:	Not applicable
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not explosive Not explosive Method: EEC L251,A.14. 1984 * thermal
Oxidizing properties	:	Method: Expert judgement The product does not contain organic peroxide-groups which

result from either the manufacturing process or from added ingredients.

Molecular weight : no data available

SECTION 10. STABILITY AND REACTIVITY

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

Chemical stability : Stable

Possibility of hazardous reactions : Dust can form an explosive mixture in air.
Stable

Conditions to avoid : Temperatures exceeding thermal stability. High concentration of powders. Electrostatic charges.

Incompatible materials : not known

Hazardous decomposition products : The product does not contain any chemical groups which suggest self-reactive properties, nor is the estimated SADT less than 75 ℃, nor is the exothermic decompositio n energy higher than 300 J/g.
No decomposition if used as directed.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Eye contact
Skin contact
Inhalation

Acute toxicity

Product:

Acute oral toxicity : LD50: > 2,000 mg/kg

Acute inhalation toxicity : Remarks: no data available

Acute dermal toxicity : Remarks: This information is not available.

Components:

Hexaboron dizinc undecaoxide:

Acute oral toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
Method: Other
GLP: yes

Acute inhalation toxicity : LC50 (Rat, male and female): ca. 1.5 mg/lca.
Exposure time: 4 h
Method: OECD Test Guideline 403
GLP: yes
Remarks: By analogy with a product of similar composition

Acute dermal toxicity : LD50 (Rabbit, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes

Skin corrosion/irritation

Product:

Remarks: no data available

Components:

Hexaboron dizinc undecaoxide:
Species: Rabbit
Exposure time: 4 h
Method: OECD Test Guideline 404
Result: No skin irritation
GLP: yes

Serious eye damage/eye irritation

Product:

Result: slight irritant effect - does not require labelling

Components:

Hexaboron dizinc undecaoxide:
Species: rabbit eye
Result: Eye irritation
Exposure time: 24 h
Method: Other
GLP: yes

Respiratory or skin sensitisation

Product:

Remarks: This information is not available.

Components:

Hexaboron dizinc undecaoxide:
Test Type: Buehler Test
Exposure routes: Dermal
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.
GLP: yes
Remarks: By analogy with a product of similar composition

Germ cell mutagenicity

Product:

Genotoxicity in vivo : Test Type: Micronucleus test

Species: Mouse
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Germ cell mutagenicity - Assessment : No information available.

Components:

Hexaboron dizinc undecaoxide:

Genotoxicity in vitro : Test Type: Ames test
Species: Salmonella typhimurium
Concentration: 1 - 1000 µg/plate
Metabolic activation: with and without
Method: OECD Test Guideline 471
Result: negative
GLP: no
Remarks: By analogy with a product of similar composition

: Test Type: In vitro gene mutation study in mammalian cells
Species: mouse lymphoma cells
Concentration: 0,1 - 5000 µg/ml
Metabolic activation: with and without
Method: OECD Test Guideline 476
Result: negative
GLP: yes
Remarks: By analogy with a product of similar composition

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:

Hexaboron dizinc undecaoxide:

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

IARC	Not listed
OSHA	Not listed
NTP	Not listed

Reproductive toxicity

Product:

Reproductive toxicity - Assessment : No information available.

Components:

Hexaboron dizinc undecaoxide:

Effects on fertility :

Test Type: Fertility
Species: Rat
Sex: male and female
Dose: 50 - 100 - 200 - 375 mg/kg
Exposure time: 92 d
Frequency of Treatment: daily
wistar
Group: yes
NOAEL: ca. 85 mg/kg,
Method: Other
GLP: yes

Effects on foetal development : Species: Rat
Application Route: oral (gavage)
Exposure time: gestation day 6-20
Dose: 100 -120 - 150 mg/kg
Group: yes
<85 mg/kg
<= 128 mg/kg
Number of exposures: daily
Method: OECD Test Guideline 414
GLP: yes

Reproductive toxicity - Assessment : Suspected of damaging fertility. Suspected of damaging the unborn child.

STOT - single exposure

Product:

Remarks: not available

Components:

Hexaboron dizinc undecaoxide:

Remarks: no data available

STOT - repeated exposure

Product:

Remarks: not available

Components:

Hexaboron dizinc undecaoxide:

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

Repeated dose toxicity

Components:

Hexaboron dizinc undecaoxide:
Species: Rat, male and female
NOAEL: ca. 85 mg/kg
Application Route: oral (gavage)
Exposure time: 92 d
Number of exposures: daily
Dose: 50 - 100 - 200 - 375 mg/kg
Group: yes
Method: OECD Test Guideline 408
GLP: yes

Species: Rat, male and female
Application Route: Inhalation
Exposure time: 13 w
Number of exposures: 6 hours/day, 5 days/week
Dose: 1 - 3 - 10 - 50 - 200 mg/m3
Method: OECD Test Guideline 413
GLP: yes
Remarks: By analogy with a product of similar composition

Aspiration toxicity

Product:

no data available

Components:

Hexaboron dizinc undecaoxide:
No aspiration toxicity classification

Experience with human exposure

Product:

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

Further information

Product:

Remarks: The product has not been tested. The information is derived from the properties of the individual components.
The classification was made by the conventional (calculation) method of the CLP Regulation (EC) No 1272/2008.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : Remarks: no data available

Toxicity to daphnia and other aquatic invertebrates : Remarks: no data available

Toxicity to algae : Remarks: no data available

Toxicity to bacteria : Remarks: no data available

Components:

Hexaboron dizinc undecaoxide:

Toxicity to fish : LC50 (Fish): 0.112 - 2.92 mg/l
Exposure time: 96 h
Test Type: static test
Analytical monitoring: no
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

LC50 (Fish): 74 mg/l
Exposure time: 96 h
Test Type: flow through
Analytical monitoring: yes
Method: Other
GLP: yes
Remarks: By analogy with a product of similar composition
Information relate to Boron.

LC50 (Oncorhynchus tshawytscha (chinook salmon)): 725 mg/l
Exposure time: 96 h
Test Type: static test
Analytical monitoring: no data available
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Boron.

Toxicity to daphnia and other aquatic invertebrates : (other aquatic crustacea): 0.14 - 6 mg/l
Exposure time: 24 h
Test Type: static test
Analytical monitoring: yes
Test substance: other TS
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

(other aquatic crustacea): 12 - 27.1 mg/l
Exposure time: 24 h

Test Type: static test
Analytical monitoring: yes
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

(other aquatic crustacea): 25.05 - 80.06 mg/l
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Boron.

(Daphnia magna (Water flea)): 133 mg/l
Exposure time: 48 h
Test Type: static test
Analytical monitoring: no
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Boron.

Toxicity to algae : NOEC (Pseudokirchneriella subcapitata (green algae)): 0.0049 - 0.124 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

NOEC (other algae): 0.1902 mg/l
End point: Growth rate
Exposure time: 48 h
Test Type: semi-static test
Analytical monitoring: yes
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

NOEC (other aquatic plant): 0.06 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Analytical monitoring: no data available
Method: Other
GLP: No information available.

Remarks: By analogy with a product of similar composition
Information relate to Zinc.

NOEC (other aquatic plant): 0.0228 - 0.0604 mg/l
0,0228 - >0,0604 mg/l
End point: Other
Exposure time: 28 d
Test Type: static test
Analytical monitoring: yes
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

NOEC (Pseudokirchneriella subcapitata (green algae)): 17.5 mg/l
End point: Growth rate
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes
Remarks: By analogy with a product of similar composition
Information relate to Boron.

NOEC (other algae): 5 - 100 mg/l
5 - >=100 mg/l
End point: Growth rate
Exposure time: 48 h
Test Type: static test
Analytical monitoring: no data available
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Boron.

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : NOEC (Salmo trutta): 0.056 - 0.25 mg/l
Exposure time: 116 d
End point: Reproduction rate
Test Type: flow through
Analytical monitoring: yes
Method: OECD Test Guideline 210
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

NOEC (Oncorhynchus mykiss (rainbow trout)): 0.039 - 0.974 mg/l
Exposure time: 30 d
End point: Other

Test Type: flow through
Analytical monitoring: yes
Method: OECD Test Guideline 215
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

NOEC (Danio rerio (zebra fish)): 5.6 mg/l
Exposure time: 34 d
End point: weight of young fish
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 210
GLP: yes
Remarks: By analogy with a product of similar composition
Information relate to Boron.

NOEC (Pimephales promelas (fathead minnow)): 11.2 mg/l
Exposure time: 32 d
End point: weight of young fish
Test Type: semi-static test
Analytical monitoring: yes
Method: Other
GLP: no
Remarks: By analogy with a product of similar composition
Information relate to Boron.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.0056 mg/l
Exposure time: 24 d
End point: mortality
Test Type: semi-static test
Analytical monitoring: yes
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

NOEC (other aquatic crustacea): 0.020 - 0.027 mg/l
Exposure time: 90 d
End point: Other
Test Type: field study
Analytical monitoring: yes
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

NOEC (Daphnia magna (Water flea)): 0.073 - 0.251 mg/l
Exposure time: 21 d
End point: Reproduction rate
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 211

GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

NOEC (other aquatic crustacea): 6.6 mg/l
Exposure time: 42 d
End point: Reproduction rate
Test Type: semi-static test
Analytical monitoring: yes
Method: Other
GLP: no
Remarks: By analogy with a product of similar composition
Information relate to Boron.

NOEC (Daphnia magna (Water flea)): 10 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
Remarks: By analogy with a product of similar composition
Information relate to Boron.

Toxicity to bacteria : EC50 (activated sludge, domestic): 5.2 mg/l
End point: Bacteria toxicity (respiration inhibition)
Exposure time: 3 h
Test Type: aquatic
Analytical monitoring: no data available
Method: OECD Test Guideline 209
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

IC50 (activated sludge): > 10 mg/l
End point: Bacteria toxicity (respiration inhibition)
Exposure time: 3 h
Test Type: aquatic
Analytical monitoring: no
Method: ISO 8192
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

EC50 (activated sludge, domestic): > 175 mg/l
End point: Bacteria toxicity (respiration inhibition)
Exposure time: 3 h
Test Type: aquatic
Analytical monitoring: no data available
Method: OECD Test Guideline 209
GLP: yes
Remarks: By analogy with a product of similar composition
Information relate to Boron.

NOEC (other bacteria): 17 - 327 mg/l
End point: Bacteria toxicity (respiration inhibition)
Exposure time: 42 d
Test Type: Soil
Analytical monitoring: yes
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

NOEC (other bacteria): 1,640 mg/l
Exposure time: 30 min
Test Type: Soil
Analytical monitoring: no
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

EC10 (other bacteria): 3 - 226 mg/l
End point: Nitrate formation rate
Exposure time: 28 d
Test Type: Soil
Analytical monitoring: yes
Method: Other
GLP: yes
Remarks: By analogy with a product of similar composition
Information relate to Boron.

NOEC (other bacteria): 419.6 mg/l
End point: Nitrate formation rate
Exposure time: 28 d
Test Type: Soil
Analytical monitoring: no
Method: OECD 216
GLP: yes
Remarks: By analogy with a product of similar composition
Information relate to Boron.

Toxicity to soil dwelling organisms : Test Type: Semi-field study
NOEC (Collembola (soil-dwelling springtail)): 32 - 1,000 mg/kg
Exposure time: 28 d
End point: Reproduction
Method: ISO 11267
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

Test Type: Semi-field study
NOEC (Eisenia fetida (earthworms)): 100 - 1,000 mg/kg
Exposure time: 28 d
End point: Reproduction

Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

Test Type: artificial soil
NOEC (other soil dwelling worm): 1,634 mg/kg
Exposure time: 42 d
End point: Reproduction
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

Test Type: artificial soil
NOEC (Eisenia sp.): 19.8 - 78.8 mg/kg, 19,8 - >78,8 mg/kg
Exposure time: 63 d
End point: Reproduction
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Boron.

Test Type: artificial soil
NOEC (Collembola (soil-dwelling springtail)): 21.9 - 87.5 mg/kg
Exposure time: 35 d
End point: Reproduction
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Boron.

Test Type: artificial soil
NOEC (Eisenia sp.): 52.5 - 136.2 mg/kg
Exposure time: 56 d
End point: Reproduction
Method: OECD Test Guideline 222
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Boron.

Plant toxicity : NOEC (other terrestrial plant): 32 - 100 mg/kg
Exposure time: 24 d
End point: Growth
Analytical monitoring: no
Method: OECD Guide-line 208
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

NOEC (other terrestrial plant): 100 - 400 mg/kg
Exposure time: 35 d

End point: Growth
Analytical monitoring: no data available
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

NOEC (Medicago sativa L.): 10 - 40 mg/kg
10 - >= 40 mg/kg dry weight (d.w.)
Exposure time: 90 d
End point: Growth
Analytical monitoring: yes
Method: Other
GLP: no
Remarks: By analogy with a product of similar composition
Information relate to Boron.

NOEC (other terrestrial plant): 26.4 - 84 mg/kg
Exposure time: 7 d
End point: Growth
Analytical monitoring: yes
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Boron.

Sediment toxicity : NOEC (Hyalella azteca (Scud)): 32 mg/kg dry weight (d.w.)
Analytical monitoring: yes
Sediment: Natural sediment
Exposure duration: 28 d
Basis for effect: Growth
Test substance: Natural sediment
Analytical monitoring: yes
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

NOEC (Chironomus tentans): 639 mg/kg dry weight (d.w.)
Analytical monitoring: yes
Sediment: Natural sediment
Exposure duration: 20 d
Basis for effect: Growth
Test substance: Natural sediment
Analytical monitoring: yes
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

NOEC: 1135 mg/kg dry weight (d.w.)
Analytical monitoring: yes
Sediment: Natural sediment

Exposure duration: 28 h
Basis for effect: Reproduction
Test substance: Natural sediment
Analytical monitoring: yes
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

NOEC: 180 mg/kg dry weight (d.w.)
Analytical monitoring: yes
Sediment: artificial soil
Exposure duration: 28 d
Basis for effect: Growth
Test substance: artificial soil
Analytical monitoring: yes
Method: Other
GLP: yes
Remarks: By analogy with a product of similar composition
Information relate to Boron.

Toxicity to terrestrial organisms : Remarks: The study is not necessary from a scientific perspective.

Persistence and degradability

Product:

Biodegradability : Remarks: This property is substance specific and cannot be given for the preparations.

Components:

Hexaboron dizinc undecaoxide:

Biodegradability : Remarks: Not applicable

Physico-chemical removability : Remarks: Inorganic product, cannot be eliminated from the water by biological purification processes.

Stability in water : Remarks: Not applicable

Bioaccumulative potential

Product:

Bioaccumulation : Remarks: not available

Components:

Hexaboron dizinc undecaoxide:

Bioaccumulation : Species: Other
Bioconcentration factor (BCF): 0.02 - 3.3
Concentration: approx. 50 mg/kg
Method: Other
GLP: No information available.

Remarks: By analogy with a product of similar composition
Information relate to Zinc.

Species: Water organisms
Bioconcentration factor (BCF): 38 - 28,960
Exposure time: 28 d
Concentration: 0.0025 - 3162 mg/l
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

Species: Water organisms
Bioconcentration factor (BCF): 116 - 60,960
Exposure time: 21 d
Concentration: 0.0025 - 3162 mg/l
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Zinc.

Species: Other
Bioconcentration factor (BCF): 0.02 - 0.04
Exposure time: 48 d
Concentration: approx. 1600 mg/kg
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Boron.

Species: Oncorhynchus nerka
Bioconcentration factor (BCF): 0.52 - 10.5
Exposure time: 21 d
Concentration: 10 mg/l
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Boron.

Species: Other
Bioconcentration factor (BCF): 5 - 123
Exposure time: 120 d
Concentration: < 0,05 - 4,9 mg/kg
Method: Other
GLP: No information available.
Remarks: By analogy with a product of similar composition
Information relate to Boron.

Mobility in soil

Product:

Distribution among environmental compartments : Remarks: not available

Components:

Hexaboron dizinc undecaoxide:

Distribution among environmental compartments	:	adsorption Medium: water - soil log Koc: < 1 Remarks: Not applicable Not expected to adsorb on soil.

Other adverse effects

Components:

Hexaboron dizinc undecaoxide:

Environmental fate and pathways	:	not available
Results of PBT and vPvB assessment	:	Remarks: Not applicable
Additional ecological information	:	Do not allow to enter ground water, waterways or waste water.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

RCRA - Resource Conservation and Recovery Authorization Act	:	No -- Not as sold.
Waste from residues	:	Dispose of any waste residues according to prescribed federal, state and local guidelines, e.g. appropriately permitted chemical waste incinerator.
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

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
Chronic 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 contains the chemical or chemicals listed below which are subject to the supplier notification requirements of Section 313 of the Superfund Amendments and Reauthorization Act of 1986 ("SARA") and the requirements of 40 CFR Part 372:

Hexaboron dizinc undecaoxide	12767-90-7	5 %

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 : On TSCA Inventory

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
Handle with care. Organic dusts have the potential to be explosive with static spark or flame initiation.

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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