

## Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 03/03/2020

Reviewed on 03/03/2020

### \* 1 Identification

- **Product Identifier**
- **Trade Name:** O-x TriPlex Micro
- **Relevant identified uses of the substance or mixture and uses advised against:**
- **Product Description:** Fertilizer
- **Details of the Supplier of the Safety Data Sheet:**
- **Manufacturer/Supplier:**  
Redox Chemicals LLC  
130 South 100 West  
PO Box 129  
Burley, ID 83318  
Phone: 208-678-2610  
Fax: 208-677-3609
- **Emergency telephone number:** 208-431-2314

### 2 Hazard(s) Identification

- **Classification of the substance or mixture:**



Environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.



Skin Irrit. 2	H315 Causes skin irritation.
STOT SE 3	H335 May cause respiratory irritation.
Eye Irrit. 2B	H320 Causes eye irritation.
Aquatic Acute 2	H401 Toxic to aquatic life.

- **Label elements:**
- **Hazard pictograms:**



- **Signal word:** Warning
- **Hazard-determining components of labeling:**  
Iron  
Zinc  
Copper
- **Hazard statements:**  
H315+H320 Causes skin and eye irritation.  
H335 May cause respiratory irritation.  
H401 Toxic to aquatic life.  
H411 Toxic to aquatic life with long lasting effects.
- **Precautionary statements:**  
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.  
P264 Wash thoroughly after handling.  
P271 Use only outdoors or in a well-ventilated area.

(Contd. on page 2)

## Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 03/03/2020

Reviewed on 03/03/2020

### Trade Name: O-x TriPlex Micro

- P273 Avoid release to the environment.  
P280 Wear protective gloves.  
P302+P352 If on skin: Wash with plenty of water.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P312 Call a poison center/doctor if you feel unwell.  
P321 Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).  
P362+P364 Take off contaminated clothing and wash it before reuse.  
P332+P313 If skin irritation occurs: Get medical advice/attention.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P391 Collect spillage.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

#### · **Unknown acute toxicity:**

This value refers to knowledge of known, established toxicological or ecotoxicological values.

2 % of the mixture consists of component(s) of unknown toxicity.

#### · **Classification system:** NFPA/HMIS Definitions: 0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme

#### · **NFPA ratings (scale 0 - 4)**



#### · **HMIS-ratings (scale 0 - 4)**



#### · **Hazard(s) not otherwise classified (HNOC):** None known

### 3 Composition/Information on Ingredients

#### · **Chemical characterization: Mixtures**

#### · **Description:** Mixture of substances listed below with non-hazardous additions.

#### · **Dangerous Components:**

CAS: 7439-89-6 RTECS: NO 4565500	Iron ⚠ Flam. Sol. 2, H228; ⚠ Skin Irrit. 2, H315; STOT SE 3, H335; Eye Irrit. 2B, H320; Combustible Dust	2-12%
CAS: 7439-96-5 RTECS: OO 9275000	Manganese ⚠ Pyr. Sol. 1, H250; Water-react. 1, H260	2-12%
CAS: 7440-66-6 RTECS: ZG 8600000	Zinc ⚠ Pyr. Sol. 1, H250; Water-react. 1, H260; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Skin Irrit. 2, H315; STOT SE 3, H335; Eye Irrit. 2B, H320	2-12%
CAS: 7440-42-8 RTECS: ED 7350000	Boron ⚠ Acute Tox. 4, H302	≤ 2.5%
CAS: 7440-50-8 RTECS: GL 5325000	Copper ⚠ Flam. Sol. 1, H228; ⚠ STOT SE 3, H335; Aquatic Acute 3, H402; Aquatic Chronic 4, H413	≤ 2.5%

(Contd. on page 3)

## Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 03/03/2020

Reviewed on 03/03/2020

**Trade Name: O-x TriPlex Micro**

· **Additional information:**

The exact percentages of the ingredients of this mixture are considered to be proprietary and are withheld in accordance with the provisions of paragraph (i) of §1910.1200 of 29 CFR 1910.1200 Trade Secrets.

### 4 First-Aid Measures

· **Description of first aid measures**

· **After inhalation:** In case of unconsciousness place patient stably in the side position for transportation.

· **After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

If skin irritation occurs, consult a doctor.

· **After eye contact:**

Rinse opened eye for at least 15 minutes under running water. If symptoms persist, consult a doctor.

If easy to do so, remove contact lenses if worn.

If eye irritation occurs, consult a doctor.

· **After swallowing:** If swallowed and symptoms occur, consult a doctor.

· **Information for doctor**

· **Most important symptoms and effects, both acute and delayed:** No further relevant information available.

· **Indication of any immediate medical attention and special treatment needed:**

No further relevant information available.

### \* 5 Fire-Fighting Measures

· **Extinguishing media**

· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

· **For safety reasons unsuitable extinguishing agents:** No further relevant information.

· **Special hazards arising from the substance or mixture:** No further relevant information available.

· **Advice for firefighters**

· **Special protective equipment for firefighters:**

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent) and full protective gear to prevent contact with skin and eyes.

### 6 Accidental Release Measures

· **Personal precautions, protective equipment and emergency procedures:** Not required.

· **Environmental precautions:**

Inform respective authorities in case of seepage into water course or sewage system.

· **Methods and material for containment and cleaning up:**

Ensure adequate ventilation.

Dispose of the collected material according to regulations.

· **Reference to other sections:**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· **Protective Action Criteria for Chemicals**

· **PAC-1:**

7439-89-6	Iron	3.2 mg/m3
7439-96-5	Manganese	3 mg/m3
7440-66-6	Zinc	6 mg/m3
7440-42-8	Boron	1.9 mg/m3
7440-50-8	Copper	3 mg/m3

(Contd. on page 4)

## Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 03/03/2020

Reviewed on 03/03/2020

**Trade Name: O-x TriPlex Micro**

<b>· PAC-2:</b>		
7439-89-6	Iron	35 mg/m <sup>3</sup>
7439-96-5	Manganese	5 mg/m <sup>3</sup>
7440-66-6	Zinc	21 mg/m <sup>3</sup>
7440-42-8	Boron	21 mg/m <sup>3</sup>
7440-50-8	Copper	33 mg/m <sup>3</sup>
<b>· PAC-3:</b>		
7439-89-6	Iron	150 mg/m <sup>3</sup>
7439-96-5	Manganese	1,800 mg/m <sup>3</sup>
7440-66-6	Zinc	120 mg/m <sup>3</sup>
7440-42-8	Boron	130 mg/m <sup>3</sup>
7440-50-8	Copper	200 mg/m <sup>3</sup>

### 7 Handling and Storage

- **Handling**
- **Precautions for safe handling:** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** Store in the original container.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s):** No further relevant information available.

### 8 Exposure Controls/Personal Protection

- **Additional information about design of technical systems:** No further data; see section 7.
- **Control parameters:**
- **Components with occupational exposure limits:**  
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.  
At this time, the other constituents have no known exposure limits.

<b>7439-96-5 Manganese</b>	
PEL	Ceiling limit value: 5 mg/m <sup>3</sup> as Mn
REL	Short-term value: 3 mg/m <sup>3</sup> Long-term value: 1 mg/m <sup>3</sup> fume, as Mn
TLV	Long-term value: 0.02* 0.1* mg/m <sup>3</sup> as Mn; *respirable **inhalable fraction
<b>7440-50-8 Copper</b>	
PEL	Long-term value: 1* 0.1** mg/m <sup>3</sup> as Cu *dusts and mists **fume
REL	Long-term value: 1* 0.1** mg/m <sup>3</sup> as Cu *dusts and mists **fume
TLV	Long-term value: 1* 0.2** mg/m <sup>3</sup> *dusts and mists; **fume; as Cu

(Contd. on page 5)

## Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 03/03/2020

Reviewed on 03/03/2020

**Trade Name: O-x TriPlex Micro**

- **Additional information:** The lists that were valid during the creation of this SDS were used as basis.
- **Exposure controls:**
- **Personal protective equipment**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing and wash before reuse.  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.
- **Breathing equipment:** Not required.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Select glove material based on penetration times, rates of diffusion and degradation.

- **Material of gloves:**  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material:**  
The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.
- **Eye protection:**



Tightly sealed goggles

- **Limitation and supervision of exposure into the environment:**  
Keep away from drains, surface and ground waters.  
Avoid release into the environment.

## 9 Physical and Chemical Properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

<b>Form:</b>	Powder
<b>Color:</b>	Brown
<b>Odor:</b>	Characteristic
<b>Odor threshold:</b>	Not determined.
<b>pH-value:</b>	Not applicable.
- **Change in condition**

<b>Melting point/Melting range:</b>	Not determined.
<b>Boiling point/Boiling range:</b>	907 °C (1,664.6 °F)
- **Flash point:** None

(Contd. on page 6)

## Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 03/03/2020

Reviewed on 03/03/2020

**Trade Name: O-x TriPlex Micro**

- **Flammability (solid, gaseous):** Not determined.
- **Ignition temperature:** Not applicable
- **Decomposition temperature:** Not determined.
- **Auto igniting:** Product is not self-igniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Explosion limits:**
  - Lower:** Not determined.
  - Upper:** Not determined.
- **Vapor pressure:** Not applicable.
- **Density:** Not determined.
- **Relative density:** Not determined.
- **Vapor density:** Not applicable.
- **Evaporation rate:** Not applicable.
- **Solubility in / Miscibility with:**
  - Water:** Insoluble.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
  - Dynamic:** Not applicable.
  - Kinematic:** Not applicable.
- **Solvent content:**
  - Organic solvents:** 0.0 %
  - Solids content:** 100 %
- **Other information:** No further relevant information available.

### 10 Stability and Reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:** Stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

### 11 Toxicological Information

- **Information on toxicological effects:**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

#### 7439-89-6 Iron

Oral	LD50	7500 mg/kg (Rat)
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#### 7439-96-5 Manganese

Oral	LD50	9000 mg/kg (Rat)
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#### 7440-66-6 Zinc

Oral	LD50	>2000 mg/kg (Rat)
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(Contd. on page 7)

## Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 03/03/2020

Reviewed on 03/03/2020

**Trade Name: O-x TriPlex Micro**

Inhalative	LC50/4 h	>5410 mg/l (Rat)
<b>7440-42-8 Boron</b>		
Oral	LD50	650 mg/kg (Rat)

· **Primary irritant effect:**

· **On the skin:** Irritant to skin and mucous membranes.

· **On the eye:** Irritating effect.

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Irritant

Symptoms of systemic copper poisoning may include: capillary damage, headache, cold sweat, weak pulse, and kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis, and coma. Death may occur from shock or renal failure. Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has lead to hemolytic anemia and accelerates arteriosclerosis.

· **Carcinogenic categories:**

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **NTP (National Toxicology Program):**

None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

## 12 Ecological Information

· **Toxicity:**

· **Aquatic toxicity:**

Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.

<b>7439-96-5 Manganese</b>	
EC50	40 mg/l (Water flea)
<b>7440-42-8 Boron</b>	
EC50	1 mg/l (Daphnia)
<b>7440-50-8 Copper</b>	
EC50	0.04-0.05 mg/l (Water flea)

· **Persistence and degradability:** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential:** No further relevant information available.

· **Mobility in soil:** No further relevant information available.

· **Ecotoxicological effects:**

· **Remark:** Toxic for fish

· **Additional ecological information:**

· **General notes:**

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

Poisonous for fish and plankton in water bodies.

Toxic for aquatic organisms

· **Results of PBT and vPvB assessment:**

· **PBT:** Not applicable.

(Contd. on page 8)



## Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 03/03/2020

Reviewed on 03/03/2020





**Trade Name: O-x TriPlex Micro**

- **vPvB:** Not applicable.
- **Other adverse effects:** No further relevant information available.

### 13 Disposal Considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Observe all federal, state and local environmental regulations when disposing of this material.
- **Uncleaned packaging**
- **Recommendation:** Disposal must be made according to official regulations.

### 14 Transport Information

- **UN-Number:**
- **DOT** Non-Regulated Material
- **ADR/ADN, IMDG, IATA** UN3077
- **UN proper shipping name:**
- **DOT** Non-Regulated Material
- **ADR/ADN** UN3077 Environmentally hazardous substances, solid, n.o.s.
- **IMDG** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., MARINE POLLUTANT
- **IATA** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
- **Transport hazard class(es):**
- **DOT**
- **Class:** Non-Regulated Material
- **ADR/ADN**
- 

- **Class:** 9 Miscellaneous dangerous substances and articles
- **IMDG, IATA**
- 

- **Class:** 9 Miscellaneous dangerous substances and articles
- **Label:** 9
- **Packing group:**
- **DOT** Non-Regulated Material
- **ADR/ADN, IMDG, IATA** III
- **Environmental hazards:**
- **Special marking (ADR/ADN):** Symbol (fish and tree)
- **Special marking (IATA):** Symbol (fish and tree)
- **Special precautions for user:** Warning: Miscellaneous dangerous substances and articles
- **Stowage Category** A
- **Stowage Code** SW23 When transported in BK3 bulk container, see 7.6.2.12 and 7.7.3.9.

(Contd. on page 9)



## Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 03/03/2020

Reviewed on 03/03/2020

**Trade Name: O-x TriPlex Micro**

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Not applicable.

· **Transport/Additional information:**

· **ADR/ADN**

· **Excepted quantities (EQ):** Code: E1  
Maximum net quantity per inner packaging: 30 g  
Maximum net quantity per outer packaging: 1000 g

· **IMDG**

· **Limited quantities (LQ):** 5 kg  
· **Excepted quantities (EQ):** Code: E1  
Maximum net quantity per inner packaging: 30 g  
Maximum net quantity per outer packaging: 1000 g

· **UN "Model Regulation":** UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S., 9, III

### 15 Regulatory Information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture:**  
· **SARA (Superfund Amendments and Reauthorization):**

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

7439-96-5	Manganese
7440-66-6	Zinc
7440-50-8	Copper

· **TSCA (Toxic Substances Control Act):**

7439-89-6	Iron
7439-96-5	Manganese
7440-66-6	Zinc
7440-42-8	Boron
7440-50-8	Copper

· **California Proposition 65:**

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **New Jersey Right-to-Know List:**

7439-96-5	Manganese
7440-66-6	Zinc
7440-42-8	Boron
7440-50-8	Copper

(Contd. on page 10)

## Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 03/03/2020

Reviewed on 03/03/2020

**Trade Name: O-x TriPlex Micro**

<b>· New Jersey Special Hazardous Substance List:</b>		
7439-96-5	Manganese	F3, R1
7440-66-6	Zinc	F3, R1

<b>· Pennsylvania Right-to-Know List:</b>		
7439-96-5	Manganese	
7440-66-6	Zinc	
7440-50-8	Copper	

<b>· Pennsylvania Special Hazardous Substance List:</b>		
7439-96-5	Manganese	E
7440-66-6	Zinc	E
7440-50-8	Copper	E

**· Carcinogenic categories:**

<b>· EPA (Environmental Protection Agency):</b>		
7439-96-5	Manganese	D
7440-66-6	Zinc	D
7440-42-8	Boron	I (oral)
7440-50-8	Copper	D

<b>· TLV (Threshold Limit Value established by ACGIH):</b>		
None of the ingredients are listed.		

<b>· NIOSH-Ca (National Institute for Occupational Safety and Health):</b>		
None of the ingredients are listed.		

**· GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

**· Hazard pictograms:**



**· Signal word: Warning**

**· Hazard-determining components of labeling:**

Iron  
Zinc  
Copper

**· Hazard statements:**

H315+H320 Causes skin and eye irritation.  
H335 May cause respiratory irritation.  
H401 Toxic to aquatic life.  
H411 Toxic to aquatic life with long lasting effects.

**· Precautionary statements:**

P261 Avoid breathing dust/fume/gas/mist/vapors/spray.  
P264 Wash thoroughly after handling.  
P271 Use only outdoors or in a well-ventilated area.  
P273 Avoid release to the environment.  
P280 Wear protective gloves.  
P302+P352 If on skin: Wash with plenty of water.

(Contd. on page 11)

## Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 03/03/2020

Reviewed on 03/03/2020

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P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a poison center/doctor if you feel unwell.
P321	Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).
P362+P364	Take off contaminated clothing and wash it before reuse.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P391	Collect spillage.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

#### · **National regulations:**

None of the ingredients are listed.

#### · **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other Information

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

#### · **Date of last revision/ revision number:** 03/03/2020 / 6

#### · **Abbreviations and acronyms:**

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road  
 ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways  
 IMDG: International Maritime Code for Dangerous Goods  
 DOT: US Department of Transportation  
 IATA: International Air Transport Association  
 ACGIH: American Conference of Governmental Industrial Hygienists  
 EINECS: European Inventory of Existing Commercial Chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 NFPA: National Fire Protection Association (USA)  
 HMIS: Hazardous Materials Identification System (USA)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent  
 PBT: Persistent, Bioaccumulative and Toxic  
 vPvB: very Persistent and very Bioaccumulative  
 NIOSH: National Institute for Occupational Safety and Health  
 OSHA: Occupational Safety & Health Administration  
 TLV: Threshold Limit Value  
 PEL: Permissible Exposure Limit  
 REL: Recommended Exposure Limit  
 Flam. Sol. 1: Flammable solids – Category 1  
 Flam. Sol. 2: Flammable solids – Category 2  
 Pyr. Sol. 1: Pyrophoric solids – Category 1  
 Water-react. 1: Substances and mixtures which in contact with water emit flammable gases – Category 1  
 Acute Tox. 4: Acute toxicity – Category 4  
 Skin Irrit. 2: Skin corrosion/irritation – Category 2  
 Eye Irrit. 2B: Serious eye damage/eye irritation – Category 2B  
 STOT SE 3: Specific target organ toxicity (single exposure) – Category 3  
 Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1  
 Aquatic Acute 2: Hazardous to the aquatic environment - acute aquatic hazard – Category 2  
 Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3  
 Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1  
 Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2  
 Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4

#### · **\* Data compared to the previous version altered.**

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