

1 Identification

· This product is considered an article. This Safety Data Sheet is written based on the encapsulated substance or mixture in this article except as noted in section 15 where components of the filter body are also considered. Section 15 includes REACH and Proposition 65 warnings regarding the presence of Lead in brass alloys in the fittings or fitting plugs.

· **Product identifier:** Gas purifying filter

· **Trade name:** CRS ZPure™ Glass O2 Filter

· **Part numbers:**

202236-B	202236R-B-QC	202236R-SS	202236-SS-QC	202237R-B	202237R-SS-QC
202236-B-QC	202236RP-B-QC	202236R-SS-QC	202237-B	202237R-B-QC	202237-SS
202236R-B	202236RP-SS-QC	202236-SS	202237-B-QC	202237R-SS	202237-SS-QC

· **SDS number:** 991033

· **Application of the substance / the mixture** Gas purification

· **Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

Chromatography Research Supplies, Inc.
2601 Technology Drive
Louisville, KY 40299 USA
sds@chromres.com

· **Information department:** Product safety department

· **Emergency telephone number:**

From U.S.A., Canada, Puerto Rico and U.S. Virgin Islands
+1-502-491-6300 8 am - 5 pm East Coast U.S. Time
+1-800-255-3924 ChemTel (24 Hours) Contract Number MIS3660977

From Outside the U.S.A., Canada, Puerto Rico or U.S. Virgin Islands
+01-813-248-0585 ChemTel (24 Hours)

Additional In-Country numbers:

China: 400-120-0751; Brazil: 0-800-591-6042; India: 000-800-100-4086; Mexico: 01-800-099-0731.

2 Hazard(s) identification

· **Classification of the substance or mixture**



GHS02

Self-heat. 1 H251 Self-heating: may catch fire.



GHS08

Carc. 1A H350 May cause cancer.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H332 Harmful if inhaled.

· **Label elements**

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

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· Hazard pictograms



GHS02 GHS07 GHS08

· Signal word *Danger*

· Hazard-determining components of labeling:

*Manganese dioxide**Quartz (SiO₂)**Activated Copper oxide**Barium oxide, obtained by calcining witherite*

· Hazard statements

*H251 Self-heating: may catch fire.**H302+H332 Harmful if swallowed or if inhaled.**H350 May cause cancer.*

· Precautionary statements

*Obtain special instructions before use.**Do not handle until all safety precautions have been read and understood.**Keep cool. Protect from sunlight.**Avoid breathing dust/fume/gas/mist/vapors/spray**Wash thoroughly after handling.**Do not eat, drink or smoke when using this product.**Use only outdoors or in a well-ventilated area.**Wear protective gloves/protective clothing/eye protection/face protection.**If swallowed: Call a poison center/doctor if you feel unwell.**Rinse mouth.**IF INHALED: Remove person to fresh air and keep comfortable for breathing.**IF exposed or concerned: Get medical advice/attention.**Store locked up.**Maintain air gap between stacks/pallets.**Store bulk masses greater than 0.5 lbs at temperatures not exceeding 100°F.**Store away from other materials.**Dispose of contents/container in accordance with local/regional/national/international regulations.*

· Classification system:

· NFPA ratings (scale 0 - 4)

*Health = 2**Fire = 4**Reactivity = 0*

· HMIS-ratings (scale 0 - 4)

*Health = *1**Fire = 4**Reactivity = 0*

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

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3 Composition/information on ingredients

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

2910-06-2	Manganese dioxide ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332	10-45%
14807-96-6	Talc (Mg ₃ H ₂ (SiO ₃) ₄)	0-35%
1317-38-0	Activated Copper oxide ⚠ Self-heat. 1, H251; ⚠ Acute Tox. 4, H302	6-25%
1304-28-5	Barium oxide, obtained by calcining witherite ⚠ Acute Tox. 3, H331; ⚠ Acute Tox. 4, H302	<1%
1314-13-2	Zinc oxide ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410	<1%
14808-60-7	Quartz (SiO ₂) ⚠ Carc. 1A, H350	<2%

· **Additional Components**

1318-02-1	Zeolite	5-15%
7631-86-9	Silicon dioxide, chemically prepared	5-15%
1327-43-1	Magnesium aluminosilicate clay	1-5%

4 First-aid measures

· **Description of first aid measures**

· **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:** Generally the product does not irritate the skin.

· **After eye contact:** Rinse opened eye for several minutes under running water.

· **After swallowing:** Immediately call 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.

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

· **Advice for firefighters**

· **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

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- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **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:

2910-06-2	Manganese dioxide	4.7 mg/m ³
7631-86-9	Silicon dioxide, chemically prepared	18 mg/m ³
1304-28-5	Barium oxide, obtained by calcining witherite	1.7 mg/m ³
1314-13-2	Zinc oxide	10 mg/m ³
14808-60-7	Quartz (SiO ₂)	0.075 mg/m ³

· PAC-2:

2910-06-2	Manganese dioxide	7.9 mg/m ³
7631-86-9	Silicon dioxide, chemically prepared	740 mg/m ³
1304-28-5	Barium oxide, obtained by calcining witherite	200 mg/m ³
1314-13-2	Zinc oxide	15 mg/m ³
14808-60-7	Quartz (SiO ₂)	33 mg/m ³

· PAC-3:

2910-06-2	Manganese dioxide	690 mg/m ³
7631-86-9	Silicon dioxide, chemically prepared	4,500 mg/m ³
1304-28-5	Barium oxide, obtained by calcining witherite	1,200 mg/m ³
1314-13-2	Zinc oxide	2,500 mg/m ³
14808-60-7	Quartz (SiO ₂)	200 mg/m ³

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7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
 - Do not open. Becomes hot on exposure to air.
- Thorough dedusting.
Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **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.

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8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

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.

14807-96-6 Talc (Mg₃H₂(SiO₃)₄)

PEL	Long-term value: 20 mppcf ppm (containing <1% Quartz)
REL	Long-term value: 2* mg/m ³ *respirable dust; and <1% Quartz
TLV	Long-term value: 2* mg/m ³ *as respirable fraction; E

1304-28-5 Barium oxide, obtained by calcining witherite

PEL	Long-term value: 0.5 mg/m ³ as Ba
REL	Long-term value: 0.5 mg/m ³ as Ba
TLV	Long-term value: 0.5 mg/m ³ as Ba

1314-13-2 Zinc oxide

PEL	Long-term value: 15* 5** mg/m ³ *total dust **respirable fraction and fume
REL	Short-term value: 10** mg/m ³ Long-term value: 5 mg/m ³ Ceiling limit value: 15* mg/m ³ *dust only **fume
TLV	Short-term value: 10* mg/m ³ Long-term value: 2* mg/m ³ *as respirable fraction

14808-60-7 Quartz (SiO₂)

PEL	Long-term value: 0.05* mg/m ³ *resp. dust; 30mg/m ³ /%SiO ₂ +2
REL	Long-term value: 0.05* mg/m ³ *respirable dust; See Pocket Guide App. A
TLV	Long-term value: 0.025* mg/m ³ *as respirable fraction

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

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· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **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.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the 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 can not 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 found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Solid

Color: Various colors

· **Odor:** Odorless

· **Odor threshold:** Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** • Not ignitable, but may heat rapidly in air with risk of igniting combustible materials in contact with it.

· **Ignition temperature:** >370 °C (>698 °F)

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Not determined.

· **Explosion limits:**

Lower: Not determined.

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Upper:	Not determined.
· Vapor pressure:	Not applicable.
· Density at 20 °C (68 °F):	0.8 g/cm ³ (6.7 lbs/gal)
· 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:	
VOC content:	0.00 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **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:**

1314-13-2 Zinc oxide

Oral LD50 >5,000 mg/kg (rat)

- **Primary irritant effect:**

- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.

- **Additional toxicological information:**

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

- **Carcinogenic categories**

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

1318-02-1	Zeolite	3
7631-86-9	Silicon dioxide, chemically prepared	3
14807-96-6	Talc (Mg3H2(SiO3)4)	3

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14808-60-7 Quartz (SiO₂)

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· NTP (National Toxicology Program)

14808-60-7 Quartz (SiO₂)

K

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

* **12 Ecological information**

· Toxicity

· Aquatic toxicity: No further relevant information available.

· 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.

· Additional ecological information:

· General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· 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.

- Do not open cartridge. Contents of cartridge should be treated as a RCRA characteristically hazardous waste (D001, Ignitability) unless all metallic fines are shown to be in the "oxidized" state. Dispose of this product in accordance with applicable local, state and federal regulations. Recover metal components by reprocessing whenever possible.

· Uncleaned packagings:

· Recommendation: Disposal must be made according to official regulations.

· Recommended cleansing agent: Water, if necessary with cleansing agents.

* **14 Transport information**

· UN-Number

· DOT, ADR, IMDG, IATA

UN3190

· UN proper shipping name

· DOT

· ADR

Self-heating solid, inorganic, n.o.s. (Activated Copper oxide)

3190 SELF-HEATING SOLID, INORGANIC, N.O.S. (Activated Copper oxide)

· IMDG, IATA

SELF-HEATING SOLID, INORGANIC, N.O.S. (Activated Copper oxide)

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· **Transport hazard class(es)**· **DOT**

· **Class** 4.2 Substances liable to spontaneous combustion
 · **Label** 4.2

· **ADR, IMDG, IATA**

· **Class** 4.2 Substances liable to spontaneous combustion
 · **Label** 4.2

· **Packing group**· **DOT, ADR, IMDG, IATA** II· **Environmental hazards:**· **Special marking (ADR):**

- EHS-Mark required (ADR 2.2.9.1.10) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

· **Special marking (IMDG):**

- EHS-Mark required (IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

· **Special precautions for user**

Warning: Substances liable to spontaneous combustion

· **Danger code (Kemler):**

30

· **EMS Number:**

F-A,S-J

· **Stowage Category**

E

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

· **Transport/Additional information:**· **DOT**· **Quantity limitations**

On passenger aircraft/rail: 15 kg
 On cargo aircraft only: 50 kg

· **Remarks:**

- Product contains less than 30 g self-heating substance. See 49 CFR Ch. 1 § 173.4 for small quantity exceptions.

· **ADR**

- Label 6.1 required for single packaging and combination packagings containing inner packagings with Dangerous Goods > 5 L for liquids or > 5 kg for solids.

· **Excepted quantities (EQ)**

Code: E2

Maximum net quantity per inner packaging: 30 g

Maximum net quantity per outer packaging: 500 g

· **Remarks:**

- Product contains less than 30 g self-heating substance.

· **IMDG**· **Limited quantities (LQ)**

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· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 500 g
· Remarks:	• Product contains less than 30 g self-heating substance.
· IATA	
· Remarks:	• Product contains less than 30 g self-heating substance. See IATA Section 2.6 for small quantity exceptions.
· UN "Model Regulation":	UN 3190 SELF-HEATING SOLID, INORGANIC, N.O.S. (ACTIVATED COPPER OXIDE), 4.2, II

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
 REACH Notification: In conformance to REACH Regulation (EC) No 1907/2006 of the European Parliament and of the Council, this is notification that purifiers made by CRS include components machined from copper alloys containing lead (Brass) above the 0.1% w/w threshold, where it is an integral part of the Article. Included products are the fittings and / or fitting plugs. Copper alloys such as brass in it's solid form and under normal conditions do not present an inhalation, ingestion or contact health hazard of the regulated substance. Operations such as welding, excessive heating or dust generating activities, such as machining, may create a health hazard. Under normal use, CRS' products are not designed or anticipated to release these regulated substances.

· Sara

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

None of the ingredients is listed.

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

2910-06-2	Manganese dioxide
1304-28-5	Barium oxide, obtained by calcining witherite
1314-13-2	Zinc oxide

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

2910-06-2	Manganese dioxide	*
7631-86-9	Silicon dioxide, chemically prepared	ACTIVE
14807-96-6	Talc (Mg3H2(SiO3)4)	ACTIVE
1327-43-1	Magnesium aluminosilicate clay	ACTIVE
1304-28-5	Barium oxide, obtained by calcining witherite	ACTIVE
1314-13-2	Zinc oxide	ACTIVE
14808-60-7	Quartz (SiO2)	ACTIVE

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

WARNING: This product can expose you to chemicals including quartz (SiO₂), which is known to the State of California to cause cancer, and lead, which is known to the State of California to cause birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

· **Chemicals known to cause cancer:**

14808-60-7	Quartz (SiO ₂)
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· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

2910-06-2	Manganese dioxide	D
1304-28-5	Barium oxide, obtained by calcining witherite	D, CBD(inh), NL(oral)
1314-13-2	Zinc oxide	D, I, II

· **TLV (Threshold Limit Value established by ACGIH)**

14807-96-6	Talc (Mg ₃ H ₂ (SiO ₃) ₄)	A4
1304-28-5	Barium oxide, obtained by calcining witherite	A4
14808-60-7	Quartz (SiO ₂)	A2

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

14808-60-7	Quartz (SiO ₂)
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· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02 GHS07 GHS08

· **Signal word** Danger

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

Manganese dioxide

Quartz (SiO₂)

Activated Copper oxide

Barium oxide, obtained by calcining witherite

· **Hazard statements**

H251 Self-heating: may catch fire.

H302+H332 Harmful if swallowed or if inhaled.

H350 May cause cancer.

· **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep cool. Protect from sunlight.

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF exposed or concerned: Get medical advice/attention.

Store locked up.

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Maintain air gap between stacks/pallets.

Store bulk masses greater than 0.5 lbs at temperatures not exceeding 100°F.

Store away from other materials.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

· **Additional classification according to Decree on Hazardous Materials:**

Carcinogenic hazardous material group III (dangerous).

· **Information about limitation of use:**

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

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

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Product safety department

· **Contact:** Product Safety Department

· **Date of preparation / last revision** 08/19/2019 / -

· **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

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)

VOC: Volatile Organic Compounds (USA, EU)

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

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Self-heat. 1: Self-heating substances and mixtures – Category 1

Acute Tox. 4: Acute toxicity – Category 4

Acute Tox. 3: Acute toxicity – Category 3

Carc. 1A: Carcinogenicity – Category 1A

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

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