

### 1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier** MSDS 991032SM
- **Trade name:** CRS Model 1000 Oxygen-Removing Purifier
- **Article number:** 202200, 202202, 202204, 202205, 202805, 202810, 202815, 202871
- **Application of the substance / the preparation** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Chromatography Research Supplies, Inc.  
2601 Technology Drive  
LOUISVILLE, KY 40299  
USA  
DJones@chromres.com
- **Information department:** Product safety department
- **Emergency telephone number:**  
During normal opening times: +1 (502) 491-6300  
CHEMTREC (24 Hours) 800-424-9300 (U.S.A.)  
When Calling from Outside the U.S.A., Dial Your Access Code for the U.S.A., then 1, then 703-527-3887.

### 2 Composition/information on ingredients

- **Chemical characterization:** Mixtures
- **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

1317-38-0	copper oxide	H251;  H301	20-60%
1314-13-2	zinc oxide	H400; H410	15-45%
1344-28-1	aluminum oxide		0-30%
7782-42-5	Graphite		0.5-6%
1305-78-8	calcium oxide	H318	0-5%
14808-60-7	Quartz (SiO2)		<2%

· **Additional Components**

7631-86-9	silicon dioxide, chemically prepared		0-20%
1313-59-3	Sodium oxide		0-5%

### 3 Hazards identification

- **Classification of the substance or mixture**



GHS02 Flame

H251 Self-heating: may catch fire.



GHS09 Environment

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

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GHS07

H319 Causes serious eye irritation.

· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Harmful

Harmful if swallowed.



Dangerous for the environment

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· **Information concerning particular hazards for human and environment:**

The product has to be labelled due to the calculation procedure of international guidelines.

· **Classification system:**

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

· **Label elements**

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

· **Hazard pictograms**



GHS02

GHS07

GHS09

· **Signal word** Danger

· **Hazard statements**

Self-heating: may catch fire.

Causes serious eye irritation.

Very toxic to aquatic life with long lasting effects.

· **Precautionary statements**

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Read label before use.

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

Keep cool. Protect from sunlight.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Store bulk masses greater than 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 = 0

Fire = 4

Reactivity = 0

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· **HMIS-ratings (scale 0 - 4)**

HEALTH	0	Health = 0
FIRE	4	Fire = 4
REACTIVITY	0	Reactivity = 0

#### 4 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; consult doctor in case of complaints.
- **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.

#### 5 Firefighting measures

- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Protective equipment:** No special measures required.

#### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:**  
Do not allow product to reach sewage system or any water course.  
Inform respective authorities in case of seepage into water course or sewage system.
- **Methods and material for containment and cleaning up:**  
Dispose contaminated material as waste according to item 13.
- **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.

#### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
  - Do not open. Becomes hot on exposure to air.  
Prevent formation of dust.
- **Information about protection against explosions and fires:** No special measures required.
- **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:** None.

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· *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 item 7.*

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

**1314-13-2 zinc oxide**

PEL	15* 5** 5*** mg/m <sup>3</sup> *total dust **respirable dust ***fume
REL	Short-term value: C 15* 10*** mg/m <sup>3</sup> Long-term value: 5 5*** mg/m <sup>3</sup> *15-min; dust only ***fume
TLV	Short-term value: 10* mg/m <sup>3</sup> Long-term value: 2* mg/m <sup>3</sup> *as respirable fraction

**1344-28-1 aluminum oxide**

PEL	15* 5** mg/m <sup>3</sup> *total dust **respirable fraction
REL	Short-term value: 1.5* mg/m <sup>3</sup> *as respirable fraction
TLV	1* mg/m <sup>3</sup> *as respirable fraction

**7782-42-5 Graphite**

PEL	15 mppcf mg/m <sup>3</sup>
REL	2.5* mg/m <sup>3</sup> *respirable dust
TLV	2* mg/m <sup>3</sup> all forms except graphite fibers; *resp. fraction

**1305-78-8 calcium oxide**

PEL	5 mg/m <sup>3</sup>
REL	2 mg/m <sup>3</sup>
TLV	2 mg/m <sup>3</sup>

**14808-60-7 Quartz (SiO<sub>2</sub>)**

PEL	see Quartz listing
REL	0.05* mg/m <sup>3</sup> *respirable dust
TLV	0.025* mg/m <sup>3</sup> *as respirable fraction

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

· **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.*

· **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:**

*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.*

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- 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:**
  - Safety glasses
  - Side shields

### 9 Physical and chemical properties

· <b>General Information</b>	
· <b>Appearance:</b>	
Form:	Granulate
Color:	Various colors
· Odor:	Odorless
· Odour threshold:	Not determined.
· <b>pH-value:</b> Not applicable.	
· <b>Change in condition</b>	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· <b>Flash point:</b> Not applicable.	
· <b>Flammability (solid, gaseous):</b> Not determined.	
· <b>Ignition temperature:</b> • Not applicable.	
· <b>Decomposition temperature:</b> Not determined.	
· <b>Auto igniting:</b> Product is not selfigniting.	
· <b>Danger of explosion:</b> Product does not present an explosion hazard.	
· <b>Explosion limits:</b>	
Lower:	Not determined.
Upper:	Not determined.
· <b>Vapor pressure:</b> Not applicable.	
· <b>Density at 20°C (68 °F):</b> 1 g/cm <sup>3</sup> (8.345 lbs/gal)	
· <b>Relative density</b> Not determined.	
· <b>Vapour density</b> Not applicable.	
· <b>Evaporation rate</b> Not applicable.	
· <b>Solubility in / Miscibility with</b>	
Water:	Insoluble.
· <b>Segregation coefficient (n-octanol/water):</b> Not determined.	
· <b>Viscosity:</b>	
Dynamic:	Not applicable.
Kinematic:	Not applicable.

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- **Solvent content:**
- Organic solvents:** 0.0 %
- **Other information:** No further relevant information available.

### 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

### 11 Toxicological information

· **Acute toxicity:**

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

Oral	LD50	5800 mg/kg (mouse)
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**1314-13-2 zinc oxide**

Oral	LD50	> 5000 mg/kg (rat)
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· **Primary irritant effect:**

· **on the skin:** No irritant effect.

· **on the eye:** 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

### 12 Ecological information

- **Acquatic 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.
- **Ecotoxicological effects:**
- **Remark:** Very toxic for fish
- **Additional ecological information:**
- **General notes:**  
Also poisonous for fish and plankton in water bodies.  
Very toxic for aquatic organisms

### 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.

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- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

**14 Transport information**

· **DOT regulations:**



- **Hazard class:** 4.2
- **Identification number:** UN3190
- **Packing group:** II
- **Proper shipping name (technical name):** SELF-HEATING SOLID, INORGANIC, N.O.S. (copper oxide)
- **Label:** 4.2
- **Remarks:** Special marking with the symbol (fish and tree).

· **Land transport ADR/RID (cross-border):**



- **ADR/RID class:** 4.2 Substances liable to spontaneous combustion
- **Danger code (Kemler):** 40
- **UN-Number:** 3190
- **Packaging group:** II
- **Label:** 4.2
- **Special marking:** Symbol (fish and tree)
- **UN proper shipping name:** 3190 SELF-HEATING SOLID, INORGANIC, N.O.S. (copper oxide), ENVIRONMENTALLY HAZARDOUS

· **Maritime transport IMDG:**



- **IMDG Class:** 4.2
- **UN Number:** 3190
- **Label:** 4.2
- **Packaging group:** II
- **EMS Number:** F-A,S-J
- **Marine pollutant:** Yes
- **Proper shipping name:** SELF-HEATING SOLID, INORGANIC, N.O.S. (copper oxide, zinc oxide)

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· **Air transport ICAO-TI and IATA-DGR:**



· **ICAO/IATA Class:** 4.2  
 · **UN/ID Number:** 3190  
 · **Label:** 4.2  
 · **Packaging group:** II  
 · **Proper shipping name:** SELF-HEATING SOLID, INORGANIC, N.O.S. (copper oxide)

· **UN "Model Regulation":**  
 UN3190, SELF-HEATING SOLID, INORGANIC, N.O.S., ENVIRONMENTALLY HAZARDOUS, 4.2, II  
 · **Environmental hazards:** Product contains environmentally hazardous substances: zinc oxide

**15 Regulatory information**

· **Sara**

· **Section 355 (extremely hazardous substances):**  
 None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**  
 1344-28-1 | aluminum oxide

· **TSCA (Toxic Substances Control Act):**  
 All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**  
 None of the ingredients is listed.

· **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)**  
 1314-13-2 | zinc oxide | II

· **IARC (International Agency for Research on Cancer)**  
 7631-86-9 | silicon dioxide, chemically prepared | 3  
 14808-60-7 | Quartz (SiO2) | I

· **NTP (National Toxicology Program)**  
 14808-60-7 | Quartz (SiO2) | K

· **TLV (Threshold Limit Value established by ACGIH)**  
 1344-28-1 | aluminum oxide | A4  
 14808-60-7 | Quartz (SiO2) | A2

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

14808-60-7 | Quartz (SiO<sub>2</sub>)

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

None of the ingredients is listed.

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

· **Hazard pictograms**



GHS02    GHS07    GHS09

· **Signal word** *Danger*

· **Hazard statements**

*Self-heating: may catch fire.*

*Causes serious eye irritation.*

*Very toxic to aquatic life with long lasting effects.*

· **Precautionary statements**

*If medical advice is needed, have product container or label at hand.*

*Keep out of reach of children.*

*Read label before use.*

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

*Keep cool. Protect from sunlight.*

*IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.*

*Continue rinsing.*

*Store bulk masses greater than 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.*

## 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 MSDS:** *Product safety department*

· **Contact:** *Mr. Jones*

· **Abbreviations and acronyms:**

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

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

*IMDG: International Maritime Code for Dangerous Goods*

*DOT: US Department of Transportation*

*IATA: International Air Transport Association*

*IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)*

*ICAO: International Civil Aviation Organization*

*ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)*

*ACGIH: American Conference of Governmental Industrial Hygienists*

*NFPA: National Fire Protection Association (USA)*

*HMIS: Hazardous Materials Identification System (USA)*

*LC50: Lethal concentration, 50 percent*

*LD50: Lethal dose, 50 percent*