Safety Data Sheet
acc. to OSHA HCS

Printing date 08/08/2013 Reviewed on 08/08/2013

1 Identification

· **This product is considered an article. This Safety Data Sheet is written based on the encapsulated substance or mixture in this article.**
· **Product identifier:** Gas purifying filter

· **Trade name: CRS ZPure™ O2 Purifier**

· **Article number:** 202216-B, 202216-SS, 202217-B, 202217-SS, 202216R-B, 202216R-SS, 202217R-B, 202217R-SS
· **SDS number:** 991052
· **Application of the substance / the preparation** Purifying gas

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Chromatography Research Supplies, Inc.
2601 Technology Drive
Louisville, KY 40299 USA
msds@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 Hazard(s) identification

· **Classification of the substance or mixture**


GHS02 Flame

H251 Self-heating: may catch fire.


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 labeled 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 labeled according to the Globally Harmonized System (GHS).

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 08/08/2013 Reviewed on 08/08/2013

Trade name: CRS ZPure™ O2 Purifier

(Contd. of page 1)

· **Hazard pictograms**

GHS02 GHS07

· **Signal word** Danger
· **Hazard statements**
Self-heating: may catch fire.
Causes serious eye irritation.
· **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.
Maintain air gap between stacks/pallets.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 0
Fire = 4
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 0
Fire = 4
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

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

· **Dangerous components:**			
1317-38-0	Activated Copper oxide	H251; H302	20-60%
1314-13-2	Zinc oxide		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%

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Trade name: CRS ZPure™ O2 Purifier

(Contd. of page 2)

· **Additional Components**		
7631-86-9	Silicon dioxide, chemically prepared	0-20%
1313-59-3	Sodium oxide	0-5%

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; 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.
· **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:**
CO2, 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.
· **Advice for firefighters**
· **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.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Trade name: CRS ZPure™ O2 Purifier

(Contd. of page 3)

· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.
· **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.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
1314-13-2 Zinc oxide	
PEL	Long-term value: 15* 5** mg/m³ *total dust **respirable fraction and fume
REL	Short-term value: C 15* 10** mg/m³ Long-term value: 5* 5** mg/m³ *dust only **fume
TLV	Short-term value: 10* mg/m³ Long-term value: 2* mg/m³ *as respirable fraction
1344-28-1 Aluminum oxide	
PEL	Long-term value: 15*; 15** mg/m³ *Total dust; ** Respirable fraction
REL	Long-term value: 10* 5** mg/m³ *Total dust **Respirable fraction
TLV	Long-term value: 1* mg/m³ as Al; *as respirable fraction
7782-42-5 Graphite	
PEL	Long-term value: 15 mppcf* mg/m³ *impinger samples counted by light field techn.
REL	Long-term value: 2.5* mg/m³ *respirable dust
TLV	Long-term value: 2* mg/m³ all forms except graphite fibers;*resp. fraction
1305-78-8 Calcium oxide	
PEL	Long-term value: 5 mg/m³
REL	Long-term value: 2 mg/m³
TLV	Long-term value: 2 mg/m³
14808-60-7 Quartz (SiO2)	
PEL	see Quartz listing
REL	Long-term value: 0.05* mg/m³ *respirable dust; See Pocket Guide App. A
TLV	Long-term value: 0.025* mg/m³ *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.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 08/08/2013 Reviewed on 08/08/2013

Trade name: CRS ZPure™ O2 Purifier

(Contd. of page 4)

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.
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:** • Side shields

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Solid
Color:	Various colors
· **Odor:**	Characteristic
· **Odour 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:**	Not applicable
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Not determined.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not applicable.
· **Density at 20 °C (68 °F):**	0.8 g/cm³ (6.676 lbs/gal)
· **Relative density**	Not determined.
· **Vapour density**	Not applicable.
· **Evaporation rate**	Not applicable.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Trade name: CRS ZPure™ O2 Purifier

(Contd. of page 5)

· **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 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **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:**		
Oral	LD50	5800 mg/kg (mouse)

1314-13-2 Zinc oxide		
Oral	LD50	> 5000 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)**		
7631-86-9	Silicon dioxide, chemically prepared	3
14808-60-7	Quartz (SiO2)	1

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

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 08/08/2013 Reviewed on 08/08/2013

Trade name: CRS ZPure™ O2 Purifier

(Contd. of page 6)

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.
· **Ecotoxical 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
· **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.

14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN3190
· **UN proper shipping name**	
· **DOT**	Self-heating solid, inorganic, n.o.s. (Activated Copper oxide)
· **ADR**	3190 Self-heating solid, inorganic, n.o.s. (Activated Copper oxide)
· **IMDG**	SELF-HEATING SOLID, INORGANIC, N.O.S. (Activated Copper oxide, Zinc oxide), MARINE POLLUTANT
· **IATA**	SELF-HEATING SOLID, INORGANIC, N.O.S. (Activated Copper oxide)
· **Transport hazard class(es)**	
· **DOT**	

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

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 08/08/2013 Reviewed on 08/08/2013

Trade name: CRS ZPure™ O2 Purifier

(Contd. of page 7)

· **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:**	Product contains environmentally hazardous substances: Zinc oxide
· **Marine pollutant:**	Yes
· **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):**	40
· **EMS Number:**	F-A,S-J
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	UN3190, 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**
· **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:**

14808-60-7	Quartz (SiO2)

· **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.

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

Trade name: CRS ZPure™ O2 Purifier

(Contd. of page 8)

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

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

1314-13-2	Zinc oxide	II

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

1344-28-1	Aluminum oxide	A4
14808-60-7	Quartz (SiO2)	A2

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

14808-60-7	Quartz (SiO2)

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

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

GHS02 GHS07

· **Signal word** Danger
· **Hazard statements**
Self-heating: may catch fire.
Causes serious eye irritation.
· **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.
Maintain air gap between stacks/pallets.
· **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 MSDS:** Product safety department
· **Contact:** Product Safety Department
· **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 Organization
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

(Contd. on page 10)

Safety Data Sheet
acc. to OSHA HCS

Printing date 08/08/2013 *Reviewed on 08/08/2013*

Trade name: CRS ZPure™ O2 Purifier

(Contd. of page 9)

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