Safety Data Sheet
acc. to OSHA HCS

Printing date 04/01/2022
Reviewed on 04/01/2022

*
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 the filter body is also considered. Section 15 includes REACH and Proposition 65 notifications and warnings regarding the presence of Lead in brass alloys in components of the filter body which only apply if the product contains brass. Only products containing a "-B" in the part number list below contain brass.*

· **Product identifier:** *Gas purifying filter*

· **Trade name:** ***CRS ZPure™ O2 Filter; CRS Model 1000™ O2 Filter***

· **Part numbers:**

202216-B	202216-B-QC	202216-SS	202216-SS-QC
202216R-B	202216R-B-QC	202216R-SS	202216R-SS-QC
202217-B	202217-B-QC	202217-SS	202217-SS-QC
202217R-B	202217R-B-QC	202217R-SS	202217R-SS-QC
	202RO2-B-QC		202RO2-SS-QC
202200-B		202200-SS	
202202-B		202202-SS	
202200-S			
221-46984			
991052			

· **SDS number:** *991052*

· **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.

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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.*

GHS09

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

Aquatic Acute 2 H401 Toxic to aquatic life.

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

GHS02 GHS08 GHS09

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Quartz (SiO2)
· **Hazard statements**
H251 Self-heating: may catch fire.
H350 May cause cancer.
H401 Toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.
· **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 release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.
IF exposed or concerned: Get medical advice/attention.
Collect spillage.
Store locked up.
Maintain air gap between stacks/pallets.
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

· **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.

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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	Self-heat. 1, H251; Acute Tox. 4, H302	15-60%
1314-13-2	Zinc oxide	Aquatic Acute 1, H400; Aquatic Chronic 1, H410	10-35%
1344-28-1	Aluminum oxide		3-8%
7782-42-5	Graphite		1-5%
14808-60-7	Quartz (SiO2)	Carc. 1A, H350	<2%

· **Additional Components**		
1318-02-1	Zeolite	10-35%
1327-43-1	Magnesium aluminosilicate clay	1-5%

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4 First-aid measures

· **Description of first aid measures**
· **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.
· **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.

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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:** No special measures required.

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6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **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.
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.

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· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
1314-13-2	Zinc oxide	10 mg/m³
1344-28-1	Aluminum oxide	15 mg/m³
14808-60-7	Quartz (SiO2)	0.075 mg/m³

· **PAC-2:**		
1314-13-2	Zinc oxide	15 mg/m³
1344-28-1	Aluminum oxide	170 mg/m³
14808-60-7	Quartz (SiO2)	33 mg/m³

· **PAC-3:**		
1314-13-2	Zinc oxide	2,500 mg/m³
1344-28-1	Aluminum oxide	990 mg/m³
14808-60-7	Quartz (SiO2)	200 mg/m³

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7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
• Do not open cartridge.
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 remaining constituent has no known exposure limits.

1314-13-2 Zinc oxide	
PEL	Long-term value: 15* 5** mg/m³ *total dust **respirable fraction and fume
REL	Short-term value: 10** mg/m³ Long-term value: 5 mg/m³ Ceiling limit value: 15* mg/m³ *dust only **fume
TLV	Short-term value: 10* mg/m³ Long-term value: 2* mg/m³ *as respirable fraction

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1344-28-1 Aluminum oxide	
PEL	Long-term value: 15*; 5** mg/m³ *Total dust; ** Respirable fraction
REL	Long-term value: 10* 5** mg/m³ as Al*Total dust**Respirable/pyro powd./welding f.
TLV	Long-term value: 1* mg/m³ as Al; *as respirable fraction, A4
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
14808-60-7 Quartz (SiO2)	
PEL	Long-term value: 0.05* mg/m³ *resp. dust; 30mg/m3/%SiO2+2
REL	Long-term value: 0.05* mg/m³ *respirable dust; See Pocket Guide App. A
TLV	Long-term value: 0.025* mg/m³ *respirable particulate matter, A2

· **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.
· **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.

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· **Eye protection:**

Tightly sealed goggles

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Granulate
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:**	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 (6.7 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 %

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· **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.

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11 Toxicological information

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

· **LD/LC50 values that are relevant for classification:**		
Oral	LD50	5,800 mg/kg (mouse)

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:

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
1318-02-1	Zeolite	3
14808-60-7	Quartz (SiO2)	1

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

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

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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:** Toxic for fish

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· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (Self-assessment): hazardous for water
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.
Also poisonous for fish and plankton in water bodies.
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.

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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
· **Label**	4.2

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· **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
· **Hazard identification number (Kemler code):**	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
· **ADR**	
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 500 g
· **IMDG**	
· **Limited quantities (LQ)**	0
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 500 g
· **UN "Model Regulation":**	UN 3190 SELF-HEATING SOLID, INORGANIC, N.O.S. (ACTIVATED COPPER OXIDE), 4.2, II

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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. Components include the fittings and / or

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fitting plugs. Copper alloys such as brass in the 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):**	
1314-13-2	Zinc oxide
1344-28-1	Aluminum oxide

· **TSCA (Toxic Substances Control Act):**		
1314-13-2	Zinc oxide	ACTIVE
1344-28-1	Aluminum oxide	ACTIVE
1327-43-1	Magnesium aluminosilicate clay	ACTIVE
7782-42-5	Graphite	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.

-Lead is a component of copper alloys (brass) used in the fitting and/or fitting plugs of the filter body.

· **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.

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

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**		
1314-13-2	Zinc oxide	D, I, II

· **TLV (Threshold Limit Value)**		
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)

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

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· **Hazard pictograms**

GHS02 GHS08 GHS09

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Quartz (SiO2)
· **Hazard statements**
H251 Self-heating: may catch fire.
H350 May cause cancer.
H401 Toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.
· **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 release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.
IF exposed or concerned: Get medical advice/attention.
Collect spillage.
Store locked up.
Maintain air gap between stacks/pallets.
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.

· **National regulations:**

· **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** 04/01/2022 / -
· **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 relatif au transport international 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
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)

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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
Carc. 1A: Carcinogenicity – Category 1A
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 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

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

US