1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product Identifiers
Product Name: ZirChrom®-CARB
Product Number: ZR01
Brand: ZirChrom®

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet
Company: ZirChrom Separations, Inc.
617 Pierce St.
Anoka, MN 55303
Telephone: +1 763-421-5264
Fax: +1 763-421-2319

1.4 Emergency telephone number
Emergency Phone #: Chemtrec (USA): (800) 424-9300

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements
Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS
None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Synonyms: Graphitized carbon surface etched zirconium oxide particles
Formula: ZrO2
Molecular weight: 123.22 g/mol
CAS-No: 1314-23-4

<table>
<thead>
<tr>
<th>Hazardous Components</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zirconium dioxide</td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1 Description of first aid measures
If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration

In case of eye contact
Flush eyes with water as a precaution

In case of skin contact
Wash off with soap and plenty of water

If swallowed
Never give anything by mouth to an unconscious person, Rinse mouth with water
4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labeling (see section 2.2.)
and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES
5.1 Extinguishing media
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide

5.2 Special hazards arising from the substance or mixture
Zirconium oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary

5.4 Further Information
No data available

6. ACCIDENTAL RELEASE MEASURES
6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapors, mist or gas. For personal protection - section 8.

6.2 Environmental precautions
Do not let product enter drains

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE
7.1 Precautions for safe handling
Further processing of solid materials may result in the formation of combustible dusts. The potential for dust formation should be taken into account before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Storage class (TRGS 51): Non combustible solids.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION
8.1 Control parameters
Components with workplace control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control Parameter</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zirconium dioxide</td>
<td>1314-23-4</td>
<td>TWA</td>
<td>5.000000 mg/m³</td>
<td>USA, Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>5.000000 mg/m³</td>
<td>USA, ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td>Remarks</td>
<td></td>
<td></td>
<td>Not classifiable as a human carcinogen</td>
</tr>
</tbody>
</table>
### 8.2 Exposure controls

**Appropriate engineering controls**  
General industrial hygiene practice.

**Personal protective equipment**

**Eye/face protection**  
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

**Skin protection**  
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal techniques (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

- Full contact Material: Nitrile rubber  
  Minimum layer thickness: 0.11 mm  
  Break through time: 480 min  
  Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

- Splash contact Material: Nitrile rubber  
  Minimum layer thickness: 0.11 mm  
  Break through time: 480 min  
  Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)  
  Data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Body Protection**  
Choose body protection in relation to its type to the concentration and amount of dangerous substances, and to the specific workplace. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**  
Respiratory protection is not required. Where protection from nuisance levels of dust are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**  
Do not let product enter drains.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- **Appearance**  
  Form: solid  
  Color: white
b) Odor: No data available

c) Odor Threshold: No data available

d) pH: No data available

e) Melting point/freezing point: Melting point 2,700°C

f) Initial boiling point and boiling point range: 4,300°C at 1,013 hPa (760 mmHg)

g) Flash point: Not applicable

h) Evaporation rate: No data available

i) Flammability (solid, gas): No data available

j) Upper/lower flammability or explosive limits: No data available

k) Vapor pressure: No data available

l) Vapor density: No data available

m) Relative density: 5.850 g/cm³

n) Water solubility: 0.1 g/L - insoluble

o) Partition coefficient: n-octanol/water

p) Auto-ignition temperature: No data available

q) Decomposition temperature: No data available

r) Viscosity: No data available

s) Explosive properties: No data available

t) Oxidizing properties: No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents, Strong acids

10.6 Hazardous decomposition products

Other decomposition products - No data available in the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity: No data available

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation: Skin-Rabbit, Result: No skin irritation (OECD 404)

Serious eye damage/eye irritation: Eyes-Rabbit, Result: Mild eye irritation (OECD 404)

Respiratory or skin sensitization: No data available

Germ cell mutagenicity: No data available

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: No data available

Specific target organ toxicity-single exposure: No data available

Specific target organ toxicity-repeated exposure: No data available

Aspiration hazard: No data available

Additional Information: RTECS: ZH8800000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

### 12. ECOLOGICAL INFORMATION

#### 12.1 Toxicity

- **Toxicity to fish**
  - Mortality L50 - _Brachdanio rerio_ (zebrafish) -> 100 mg/l - 96 h (OECD Test Guideline 203)

- **Toxicity to daphnia and other aquatic invertebrates**
  - Static test E50 - _Daphnia magna_ (water flea) -> 100 mg/l - 48h

#### 12.2 Persistence and degradability

No data available

#### 12.3 Bioaccumulative potential

No data available

#### 12.4 Mobility in soil

No data available

#### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/no conducted

#### 12.6 Other adverse effects

No data available

### 13. DISPOSAL CONSIDERATIONS

#### 13.1 Waste Treatment methods

- **Product**
  - Offer surplus and non-recyclable solutions to a licensed disposal company

- **Contaminated packaging**
  - Dispose of as unused product

### 14. TRANSPORT INFORMATION

- **DOT(US):** Not dangerous goods
- **IMDG:** Not dangerous goods
- **IATA:** Not dangerous goods

### 15. REGULATORY INFORMATION

- **SARA 302 Components**
  - No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302
SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (DeMinimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right to Know Components
<table>
<thead>
<tr>
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Pennsylvania Right to Know Components
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New Jersey Right to Know Components
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California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

HMIS Rating
Health Hazard: 0
Chronic Health Hazard: 0
Flammability: 0
Physical Hazard: 0

NFPA Rating
Health Hazard: 0
Fire Hazard: 0

Further Information
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Preparation Information
ZirChrom Separations, Inc.
763-421-5264
Version: 1.0  Revision Date: 06/1/2016  Print Date: 9/19/2016