1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Carbon, mesoporous
Product Number: 699640
Brand: Aldrich
Supplier: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Carcinogen

GHS Classification
Acute toxicity, Dermal (Category 5)
Carcinogenicity (Category 2)

GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)
H313 May be harmful in contact with skin.
H351 Suspected of causing cancer.

Precautionary statement(s)
P281 Use personal protective equipment as required.

HMIS Classification
Health hazard: 0
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 0

NFPA Rating
Health hazard: 0
Fire: 0
Reactivity Hazard: 0

Potential Health Effects
Inhalation May be harmful if inhaled. May cause respiratory tract irritation.
Skin May be harmful if absorbed through skin. May cause skin irritation.
Eyes
Ingestion
May cause eye irritation.
May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>Graphitized carbon black</td>
</tr>
<tr>
<td>Formula</td>
<td>C</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>12.01 g/mol</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>1333-86-4</td>
</tr>
<tr>
<td>EC-No.</td>
<td>215-609-9</td>
</tr>
<tr>
<td></td>
<td>90 - 100 %</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Wash off with soap and plenty of water. Consult a physician.

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

**If swallowed**
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

**Conditions of flammability**
Not flammable or combustible.

**Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**
Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods and materials for containment and cleaning up**
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

**Precautions for safe handling**
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

**Conditions for safe storage**
Keep container tightly closed in a dry and well-ventilated place.
Keep in a dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon black</td>
<td>1333-86-4</td>
<td>TWA</td>
<td>3.5 mg/m3</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Remarks
Not classifiable as a human carcinogen

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA</td>
<td>3.5 mg/m3</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td>TWA</td>
<td>3.5 mg/m3</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td>TWA</td>
<td>3.5 mg/m3</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td>TWA</td>
<td>0.1 mg/m3</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
</tbody>
</table>

Potential Occupational Carcinogen Carbon black in presence of polycyclic aromatic hydrocarbons (PAHs) See Appendix C See Appendix A

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (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.

Eye protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**
- **Form**: powder, pellets
- **Colour**: black

**Safety data**
- **pH**: 4.0 - 11.0 at 50 g/l at 20 °C (68 °F)
- **Melting point/freezing point**: Melting point/range: 3,654 - 3,697 °C (6,609 - 6,687 °F)
- **Boiling point**: 4,827 °C (8,721 °F)
- **Flash point**: no data available
- **Flammability (solid, gas)**: The product is not flammable.
- **Ignition temperature**: no data available
- **Auto-ignition temperature**: > 315 °C (> 599 °F)
- **Lower explosion limit**: no data available
- **Upper explosion limit**: no data available
- **Vapour pressure**: no data available
- **Density**: 1.500 - 1.900 g/cm³ at 20 °C (68 °F)
- **Water solubility**: 0.0001 g/l - OECD Test Guideline 105 - insoluble
- **Partition coefficient: n-octanol/water**: no data available
- **Relative vapour density**: no data available
- **Odour**: odourless
- **Odour Threshold**: no data available
- **Evaporation rate**: no data available

10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**
no data available

**Conditions to avoid**
Do not heat over: 290°C

**Materials to avoid**
Strong oxidizing agents, Chlorates, Nitrates

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION
Acute toxicity

**Oral LD50**
LD50 Oral - rat - male and female - > 8,000 mg/kg

**Inhalation LC50**
no data available

**Dermal LD50**
LD50 Dermal - rabbit - > 3,000 mg/kg

**Other information on acute toxicity**
no data available

**Skin corrosion/irritation**
Skin - rabbit - No skin irritation - 24 h - OECD Test Guideline 404

**Serious eye damage/eye irritation**
Eyes - rabbit - No eye irritation - OECD Test Guideline 405

**Respiratory or skin sensitisation**
guinea pig - Did not cause sensitisation on laboratory animals. - OECD Test Guideline 406

**Germ cell mutagenicity**
Genotoxicity in vitro - Ames test - S. typhimurium - with and without metabolic activation - negative
Genotoxicity in vitro - Hamster - ovary - with and without metabolic activation - negative
Genotoxicity in vivo - rat - female - Inhalation - negative

**Carcinogenicity**
Carcinogenicity - rat - Inhalation
Tumorigenic:Carcinogenic by RTECS criteria. Lungs, Thorax, or Respiration:Tumors.
This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.
Limited evidence of carcinogenicity in animal studies

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Carbon black)
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a 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

Teratogenicity

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
Aspiration hazard
no data available

Potential health effects

<table>
<thead>
<tr>
<th>Mode</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>May be harmful if inhaled. May cause respiratory tract irritation.</td>
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<td>Ingestion</td>
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<td>Eyes</td>
<td>May cause eye irritation.</td>
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</table>

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

Synergistic effects
no data available

Additional Information
RTECS: FF5800000

12. ECOLOGICAL INFORMATION

Toxicity

<table>
<thead>
<tr>
<th>Type</th>
<th>Endpoint</th>
<th>Concentration</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to fish</td>
<td>LC50 - Danio rerio (zebra fish)</td>
<td>&gt; 1,000 mg/l</td>
<td>96 h</td>
</tr>
<tr>
<td>Toxicity to daphnia and</td>
<td>static test EC50 - Daphnia</td>
<td>&gt; 5,600 mg/l</td>
<td>24 h</td>
</tr>
<tr>
<td>other aquatic invertebrates</td>
<td>magna (Water flea)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toxicity to algae</td>
<td>static test EC50 - Desmodesmus</td>
<td>&gt; 10,000 mg/l</td>
<td>72 h</td>
</tr>
<tr>
<td></td>
<td>subspicatus (green algae)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Method: OECD Test Guideline 202</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Method: OECD Test Guideline 201</td>
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</tbody>
</table>

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

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

OSHA Hazards
Carcinogen

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
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<tbody>
<tr>
<td>Carbon black</td>
<td>1333-86-4</td>
<td>1991-07-01</td>
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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

WARNING! This product contains a chemical known to the State of California to cause cancer.

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<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon black</td>
<td>1333-86-4</td>
<td>2003-02-21</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

Further information
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