

A Safety Data Sheet is not legally required for this product under the Workplace Hazardous Materials Information System (WHMIS). The following information is provided as a courtesy service to our customers.

SECTION 1: IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING**1.1 Product identifier**

Trade name: **CARBOPROP®**
Registration number: NA
Synonym(s): Ceramic Proppant; Semi-Crystalline Alumina Silicate; Sintered Bauxite
Preparation/Revision date: 19 October 2016

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Proppant for oil and natural gas well hydraulic fracturing
Uses advised against: None known

1.3 Details of the supplier of the safety data sheetManufacturer / Supplier

Company name: CARBO Ceramics Inc.
Address: 575 N. Dairy Ashford Road, Suite 300
Houston, Texas 77079, USA
Customer service: +1-337-367-6151

1.4 Emergency telephone number

For Chemical Emergency
Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night
Within USA and Canada: 1-800-424-9300

SECTION 2: HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture**

The article has been assessed and /or tested for its physical, health and environmental hazards and the following classifications apply.

Classification according to WHMIS (Canada)

Classification: Not controlled

SECTION 2: HAZARDS IDENTIFICATION (CONT'D)

2.2 Label elements

| | |
|---------------------------------|------|
| Contains: | None |
| Hazard pictogram: | None |
| Signal word: | None |
| Hazard statement: | None |
| Precautionary statements: | |
| - Prevention: | None |
| - Response: | None |
| - Storage: | None |
| - Disposal: | None |
| Supplemental label information: | None |

2.3 Other hazards None

Hazard summary

| | |
|------------------------|---|
| Physical hazards: | Not classified for physical hazards. |
| Health hazards: | While the use of this product as intended generally does not create respirable dusts, small amounts may form from transport or conveyance. Prolonged inhalation of insoluble, respirable (less than 10 micron) dusts can lead to pulmonary damage. Use standard hygienic practices to minimize exposure to dusts that may form. |
| Environmental hazards: | Not classified for hazards to the environment. |
| Main symptoms: | Exposure to dust may cause irritation of eyes, nose, throat and mucous membranes. Prolonged contact with skin may cause irritation. Use of the product as intended does not result in exposure to dust. |

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

ARTICLE

3.1 Substances

| Chemical Name | Percent | CAS No. | Notes |
|--|---------|------------|-------|
| Ceramic materials and wares, chemicals | 100 | 66402-68-4 | - |

Composition comments: The full text for all R- and H- phrases is displayed in Section 16. All concentrations are in percent by weight unless ingredients are a gas. Gas concentrations are in percent by volume.

SECTION 4: FIRST AID MEASURES**General Information**

Show this Safety Data Sheet to the medical professional in attendance. Exposure is not anticipated with use of this product as intended. If symptoms occur, follow first aid measures as appropriate.

4.1 Description of first aid measures

Inhalation:

Remove to fresh air. Get medical attention if irritation or symptoms persist.

Skin contact:

Wash with soap and water. Get medical attention if irritation develops or persists.

Eye contact:

Rinse immediately with plenty of water, including under the eyelids, for at least 15 minutes. Get medical attention if irritation or symptoms persist.

Ingestion:

Rinse mouth. Do not induce vomiting. Get medical attention.

Notes to Physician:

None specified

4.2 Most important symptoms and effects, both acute and delayed

Exposure to dust may cause irritation of eyes, nose, throat and mucous membranes. Prolonged contact with skin may cause irritation. Use of the product as intended does not result in exposure to dust.

4.3 Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptoms as needed.

SECTION 5: FIRE FIGHTING MEASURES**General fire hazards**

This product is not flammable.

5.1 Extinguishing Media

Suitable extinguishing media:

Not applicable

Unsuitable extinguishing media:

Not applicable

5.2 Special hazards arising from the substance or mixture

Not applicable

SECTION 5: FIRE FIGHTING MEASURES (CONT'D)**5.3 Advice for firefighters**

Special protective equipment for firefighters: Not applicable
Special firefighting procedures: Not applicable
Special remarks on fire hazards: None

SECTION 6: ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel: Avoid dust formation. Wear suitable protective clothing. Avoid contact with skin and eyes.
For emergency responders: Use personal protection recommended in Section 8 of the SDS.

6.2 Environmental Precautions None known

6.3 Methods and materials for containing and cleaning up Sweep up spilled substance and remove to safe place. Pick up and arrange for disposal without creating dust. Spilled material can reduce traction and may present a slip hazard. Collect and dispose of spillage as indicated in Section 13.

6.4 Reference to other Sections For personal protection, see Section 8.
For waste disposal, see Section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling Avoid dust formation. Avoid breathing dust. Observe good industrial hygiene practices. Spilled material can reduce traction and may present a slip hazard.

7.2 Conditions for safe storage, including any incompatibilities Keep container tightly closed. Store in accordance with local, regional, national and international regulations.

7.3 Specific end use(s) Industrial use – oil & gas well stimulation.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Canada. Occupational Exposure Limits

| Component | CAS No. | Typ | Valu | For |
|--|------------|-----|------|-----|
| Ceramic materials and wares, chemicals | 66402-68-4 | N/A | N/A | N/A |

Consult local authorities for acceptable exposure limits

8.2 Exposure Controls

Appropriate engineering controls: Observe occupational exposure limits and prevent generation of dusts.

Individual Protective Measures

| | |
|--|--|
| General Information: | Personal protective equipment should be chosen according to applicable standards and in consultation with the supplier of the personal protective equipment. Spilled material can reduce traction and may present a slip hazard. |
| Eye/face protection: | Wear safety glasses with side shields or goggles. Avoid wearing contact lenses while handling. |
| Skin protection: | |
| - Hand protection: | Wear protective gloves. |
| - Other: | Minimize skin contact. |
| Respiratory protection: | In case of inadequate ventilation or risk of inhalation of dust, use a suitable air purifying respirator with particle filter or dust mask (Type P2). |
| Thermal hazards: | Not applicable |
| Hygiene measures | Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. |
| Environmental exposure controls | Environmental manager must be informed of all major releases. |

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | | | |
|---|----------------------------------|--|---|
| Form | Solid spheres | Explosive properties | Not applicable |
| Color | Brown to dark green to black | Explosive limit | Not applicable |
| Odor | Odorless | Vapor pressure | Not applicable |
| Odor threshold | Not applicable | Vapor density | Not applicable |
| pH | Not applicable | Evaporation rate | Not applicable |
| Melting/freezing point | 2,204°C / 4,000°F (Estimated) | Relative density | 3.3 (water = 1) |
| Boiling point, initial boiling point and boiling range | Not applicable | Partition coefficient (n-octanol/water) | No data available |
| Flash point | Not applicable | Solubility (water) | Insoluble in water |
| Auto-ignition temperature | Not applicable | Decomposition temperature | No data available |
| Flammability (solid, gas) | Not applicable | Bulk density | 1,890 kg/m ³ (118 lb/ft ³) |
| Flammability limit-lower% | Not applicable | Viscosity | Not applicable |
| Flammability limit-upper% | Not applicable | VOC (weight %) | 0 % |
| Oxidizing properties | Not applicable | Percent volatile | Not applicable |

9.2 Other Information

No relevant additional information available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport.

10.2 Chemical stability

Material is stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous polymerization does not occur under normal conditions.

10.4 Conditions to avoid

Not specified

10.5 Incompatible materials

Strong oxidizers

10.6 Hazardous decompositions products

Not applicable

SECTION 11: TOXICOLOGICAL INFORMATION**General information on likely routes of exposure**

| | |
|---------------|---|
| Ingestion: | May cause discomfort if swallowed. |
| Inhalation: | Inhalation of dust may cause respiratory irritation. Use of this product as intended does not result in exposure to dust. |
| Skin contact: | Dust may irritate skin. Use of this product as intended does not result in exposure to dust. |
| Eye contact: | Dust may irritate eyes. Use of this product as intended does not result in exposure to dust. |
| Symptoms: | Exposure to dust may cause irritation of eyes, nose, throat and mucous membranes. Prolonged contact with skin may cause irritation. Use of the product as intended does not result in exposure to dust. |

11.1 Information on toxicological effects

| | |
|---------------------------------|---|
| Acute Toxicity: | No data were identified for this product. |
| Serious Eye Damage/Irritation: | No data were identified for this product. |
| Skin corrosion/Irritation: | No data were identified for this product. |
| Respiratory/Skin Sensitization: | No data were identified for this product. |
| Germ Cell Mutagenicity: | No data were identified for this product. |
| Carcinogenicity: | No data were identified for this product. |
| Reproductive Toxicity: | No data were identified for this product. |
| Developmental Effects: | No data were identified for this product. |
| STOT – Single Exposure: | No data were identified for this product. |
| STOT – Repeated Exposure: | While the use of this product as intended generally does not create respirable dusts, small amounts may form from transport or conveyance. Prolonged inhalation of insoluble, respirable (less than 10 micron) dusts can lead to pulmonary damage. Use standard hygienic practices to minimize exposure to dusts that may form. |
| Aspiration Hazard: | Not relevant based on physical form of the product. |

Conclusion/Summary

This product is not expected to produce toxic effects.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity / Aquatic ecotoxicity

| Product / ingredient name | Test | Result (mg/L) | Species | Exposure |
|---------------------------|---|--|------------|----------|
| CARBOPROP | ISO10253:2006 | EC ₅₀ : >1,000 EC ₉₀ : >1,000 | Algae | 72 hour |
| | ISO14669:1999 | LC ₅₀ : 304 LC ₁₀₀ : >1,000 NOEC: 26 | Crustacean | 48 hour |
| | OECD 203: Fish Acute Toxicity | LC ₅₀ : >304 NOEC: 304 | Fish | 96 hour |
| | OSPAR Protocol 2006 (Sediment Reworker) | LC ₅₀ : >12,196 mg/kg NOEC: 12,196 mg/kg | Crustacean | 10 day |

12.2 Persistence and degradability

Product is not biodegradable with low solubility in water and is not expected to decompose in the environment.

12.3 Bioaccumulative potential

Product is not biodegradable with low solubility in water and is not expected to accumulate in the environment.

12.4 Mobility

No data available

12.5 Results of PBT and vPvB assessment

Not a PBT or vPvB material

12.6 Other adverse effects

This product is not classified as hazardous to the environment.

Conclusion/Summary

Ecotoxicity data from comparable products indicates that this product is non-toxic in the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Residual waste:

Dispose of in accordance with all applicable regulations.

Contaminated packaging:

Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS (CONT'D)

Disposal methods/information: Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local, regional, national, international regulations.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14: TRANSPORT INFORMATION

14.1 UN Number Not applicable, not regulated as hazardous for transport.

14.2 UN proper shipping name Not applicable, not regulated as hazardous for transport.

14.3 Transport hazard class(es) Not applicable, not regulated as hazardous for transport.

14.4 Packing group Not applicable, not regulated as hazardous for transport.

14.5 Environmental hazards Not applicable, not regulated as hazardous for transport.

14.6 Special precautions for user Not applicable, not regulated as hazardous for transport.

14.7 Transport in bulk according to Annex II MARPOL73/78 and the IBC Code Not applicable, not regulated as hazardous for transport.

The transport regulation may vary based on the country of use. Check for the appropriate regulations in the country of transport or usage of this product.

SECTION 15: REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Canadian Regulations**

WHMIS (Canada): This product has been classified according to the hazard criteria of the CPR and the SDS contains all of the information required by the CPR.

SECTION 15: REGULATORY INFORMATION (CONT'D)

| | |
|--|--|
| WHMIS Ingredient Disclosure List (Canada): | None |
| CEPA (DSL): | All components are listed or exempted. |
| Other Regulations | None specified |

SECTION 16: OTHER INFORMATION

Label Requirements None

List of abbreviations

| | |
|---------|--|
| CAS | Chemical Abstract Service |
| EC50/90 | Effective Concentration (median / 90 th percentile) |
| LC50/90 | Lethal Concentration (median / 90 th percentile) |
| NOEC | No Observed Effect Concentration |
| PBT | Persistent, Bioaccumulative and Toxic |
| vPvB | Very Persistent and Very Bioaccumulative |
| WHMIS | Workplace Hazardous Materials Information System (Canada) |

References ChemAdvisor List of Lists (LOLI)
IARC Monographs. Overall Evaluation of Carcinogenicity
IUCLID DATA Set

Information on evaluation method leading to the classification of mixture The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available. For details refer to Sections 9, 11 and 12.

Training information Follow training instructions when handling this material.

SDS Revisions SDS prepared on 19 October 2016.

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available.