# SAFETY DATA SHEET

***A Safety Data Sheet is not legally required for this product under the OSHA Hazard Communication Standard (29 CFR 1910.1200). 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: | **CARBOAIR™** |
| Registration number: | NA |
| Synonym(s): | Resin-Treated Ceramic Proppant; Semi-Crystalline Alumina Silicate; Sintered Kaolinite |
| Preparation/Revision date: | 30 October 2015 |

### 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 sheet

Manufacturer / Supplier

| | |
|---|---|
| Company name: | CARBO Ceramics Inc. |
| Address: | 575 N. Dairy Ashford Road, Suite 300<br>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

This product is an article. Human and environmental exposure to the chemical additive is not anticipated under normal handling and storage conditions. The following information is provided as a courtesy in case of incidental exposure. This article has been assessed and/or tested for its physical, health and environmental hazards and the following classifications apply.

## SECTION 2: HAZARDS IDENTIFICATION (CONT'D)

Classification according to the OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|---|---|
| Classification: | Not classified |

**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. Exposure to the chemical additive may cause irritation to the eyes, skin and upper respiratory tract. Use of the product as intended does not result in exposure to dust or chemical additives**.** |

## SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

**ARTICLE**

| Chemical Name | Percent | CAS No. | Notes |
|---|---|---|---|
| Ceramic materials and wares, chemicals | 93 - 97 | 66402-68-4 | - |
| Phenolic resin | 2 - 6 | Trade Secret | - |
| Proprietary surfactant | < 1 | Trade Secret | - |

**Composition comments:** All concentrations are in percent by weight unless ingredients are a gas. Gas concentrations are in percent by volume. Chemical identity and exact concentrations withheld as trade secret.

## 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. Use of the product as intended does not result in exposure to dust or chemical additives**.**

**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** | Product may ignite if exposed to open flame or other ignition sources. |

**5.1 Extinguishing Media**

| | |
|---|---|
| Suitable extinguishing media: | $CO_2$, dry chemical, foam or water |
| Unsuitable extinguishing media: | Not applicable |

| | |
|---|---|
| **5.2 Special hazards arising from the substance or mixture** | Oxides of carbon, oxides of nitrogen, ammonia, aldehydes or other materials may be produced under fire conditions. |

**5.3 Advice for firefighters**

| | |
|---|---|
| Special protective equipment for firefighters: | In the event of fire, wear self-contained breathing apparatus |
| 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. Avoid dust inhalation. Avoid exposure to chemical additives. 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** | Prevent further spillage if safe to do so. |
| **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. Flush area with water. Collect and dispose of spillage as indicated in Section 13. |
| **6.4 Reference to other Sections** | For personal protection, see Section 8.<br>For waste disposal, see Section 13. |

## SECTION 7: HANDLING AND STORAGE

**7.1 Precautions for safe handling**

Avoid dust formation. Avoid dust inhalation. Avoid exposure to chemical additives. 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. Prevent accumulation of dust. Avoid moisture. 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**

**United States. Occupational Exposure Limits**

| Component | CAS No. | Type | Value | Form |
|---|---|---|---|---|
| Ceramic materials and wares, chemicals | 66402-68-4 | N/A | N/A | N/A |
| Phenolic resin | Trade Secret | N/A | N/A | N/A |
| Proprietary surfactant | Trade Secret | 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).

## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION (CONT'D)

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** | Pale yellow | **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** | Not applicable<br>(Estimated – Resin)<br>4,000°F / 2,204°C<br>(Estimated – Substrate) | **Relative density** | 2.0 (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** | 70 lb/ft$^3$ (1,120 kg/m$^3$) |
| **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** | Thermal decomposition may produce oxides of carbon, oxides of nitrogen, ammonia, aldehydes or other materials. |

## SECTION 11: TOXICOLOGICAL INFORMATION

**General information on likely routes of exposure**

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

**11.1 Information on toxicological effects**

| | |
|---|---|
| Acute Toxicity: | No data were identified for the product or its constituents. |
| Serious Eye Damage/Irritation: | No data were identified for the product or its constituents. |
| Skin corrosion/Irritation: | No data were identified for the product or its constituents. |

## SECTION 11: TOXICOLOGICAL INFORMATION (CONT'D)

| | |
|---|---|
| Respiratory/Skin Sensitization: | No data were identified for this product as a whole. None of the components of this product are known or anticipated to be sensitizers. |
| Germ Cell Mutagenicity: | No data were identified for this product as a whole. None of the components of this product are known or anticipated to be mutagenic. |
| Carcinogenicity: | No data were identified for this product as a whole. The metallic tracer is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA. |
| Reproductive Toxicity: | No data were identified for this product as a whole. A component of the proprietary surfactant, present in the final product at less than 0.01%, is suspected of damaging fertility or the unborn child. |
| Developmental Effects: | No data were identified for the product or its constituents. |
| STOT – Single Exposure: | No data were identified for the product or its constituents. |
| STOT – Repeated Exposure: | No data were identified for this product as a whole. 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** | No data were identified for the product or its constituents. |
| **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. |
| 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

**USA Federal Regulations**

| | |
|---|---|
| 29 CFR 1910.1200 Hazard Communication Standard (HCS): | Not hazardous |
| TSCA - U.S. Inventory (TSCA 8b): | Exempt/Compliant |
| SARA Title III – Section 302, Extremely Hazardous Substances (EHS): | None |
| U.S. Clean Air Act (CAA): | None |
| U.S. Clean Water Act (CWA): | None |
| U.S. Chemical Facility Anti-Terrorism Standards (CFATS): | None |
| CERCLA - Hazardous substances: | None |
| SARA Title III – 311/312, Hazard Classes: | |
| Fire / Flammability | No |
| Reactivity | No |
| Release of Pressure | No |
| Acute Health Hazard | No |
| Chronic Health Hazard | No |
| SARA 313 – Toxic Chemicals: | None |

**USA State Regulations:**

| | |
|---|---|
| California Prop 65: | Not listed |
| Massachusetts – Right to Know: | Not listed |
| New Jersey - Right to Know: | Not listed |
| Pennsylvania – Right to Know: | Not listed |

**Other Regulations** None specified

## SECTION 16: OTHER INFORMATION

**Label Requirements** None

**List of abbreviations**

| | |
|---|---|
| CAS | Chemical Abstract Service |
| OSHA | Occupational Safety and Health Administration (United States) |
| PBT | Persistent, Bioaccumulative and Toxic |
| vPvB | Very Persistent and Very Bioaccumulative |

## SECTION 16: OTHER INFORMATION (CONT'D)

| | |
|---|---|
| **References** | ChemAdvisor List of Lists (LOLI)<br>IARC Monographs. Overall Evaluation of Carcinogenicity<br>IUCLID DATA Set<br>Supplier SDS |
| **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 30 October 2015. |
| **Disclaimer** | The information in the sheet was written based on the best knowledge and experience currently available. |