

A Safety Data Sheet is not legally required for this product under the Regulation No 1907/2006 (REACH) as amended and Regulation No 1272/2008 (CLP) as amended. 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:	CARBOLITE®
Registration number:	OSPAR – Denmark: 2254101
	OSPAR – Netherlands: 2804
	OSPAR – Norway: 5261
	OSPAR – United Kingdom: 2804
	REACH: Not applicable (article)
Synonym(s):	Ceramic Proppant; Semi-Crystalline Alumina Silicate; Sintered
Preparation/Revision date:	16 November 2018

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	Not applicable (non-hazardous product)
---------------------------------------	--

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.

<u>Classification according to Regulation (EC) No. 1272/2008 as amended</u>	
Classification:	Not classified

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 known

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 of dust may form from transport or conveyance. 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

3.1 Description of first aid measures Not applicable

3.2 Mixtures

Note: The product is considered an Article

Chemical Name	Percent	CAS No./EC No.	REACH Registration No.	INDEX No.	Notes
Ceramic materials and wares, chemicals	95 - 100	66402-68-4 266-340-9	Exempt – Article	Not applicable	-
Regulation No. 1272/2008: Not classified					

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

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

Austria. MAK List

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Belgium. Occupational Exposure Limits

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Bulgaria. Occupational Exposure Limits:

Regulation No. 13 of Ministry of Labor & Social Policy, with Ministry of Health on protection of workers related to exposure to chemical agents exposure at work.

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Croatia. Occupational Exposure Limits

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Cyprus. Occupational Exposure Limits:

Control of factory atmosphere and dangerous substances in factories regulation, PL 311/173, as amended

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Czech Republic. Occupational Exposure Limits:

Government Decree 361

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	TWA	2.0 mg/m ³	Respirable fraction, ≤5% silica, crisobalite, tridymite and gamma-aluminum oxide

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

Denmark. Occupational Exposure Limits

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Estonia. Occupational Exposure Limits:

Limit Values for Hazardous Substances (Minister of Social Affairs Regulation No. 57)

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Finland. Occupational Workplace Exposure Limits

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

France. Threshold Limit Values:

(VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Germany. Workplace Exposure Limits:

TRGS 900, Limit Values in the Ambient Air at the Workplace

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Greece. Occupational Exposure Limits

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Hungary. Occupational Exposure Limits:

Joint Decree on Chemical Safety of Workplaces

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Iceland. Occupational Exposure Limits:

Regulation 154/1999 on occupational exposure limits

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Ireland. Occupational Exposure Limits

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Italy. Occupational Exposure Limits

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

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

Latvia. Occupational Exposure Limits

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Lithuania. Occupational Exposure Limits:

Occupational Exposure Limit Values for Hazardous Chemical Substance Concentration, General Requirement (No. 645/169)

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Netherlands. Occupational Exposure Limits

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Norway. Administrative Norms for Contaminants in the Workplace

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Poland. Maximum Allowable Concentrations:

Minister of Labour and Social Policy

Regarding Maximum Allowable Concentrations and Intensities in Working Environment

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Portugal. Exposure Limit Values:

Norm on occupational exposure to chemical agents (NP1796)

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Romania. Occupational Exposure Limits

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Serbia. Occupational Exposure Limits

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

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

Slovak Republic. Occupational Exposure Limits:

Decree of the government of the Slovak Republic concerning protection of health in work with chemical agents

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	TWA	2 mg/m ³	Respirable fraction, ≤ 5% fibrogenic component
		TWA	10 mg/m ³	Respirable fraction, > 5% fibrogenic component
		TWA	10 mg/m ³	Total aerosol

Slovenia. Occupational Exposure Limits:

Regulation concerning protection of workers against risks due to exposure to chemicals while working

(Official Gazette of the Republic of Slovenia)

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Spain. Occupational Exposure Limits

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Sweden. Occupational Exposure Limits

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Switzerland. Workplace Exposure Limits

SULA Grenzwerte am Arbeitsplatz

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Turkey. Occupational Exposure Limits

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

United Kingdom. Workplace Exposure Limits:

EH40

Component	CAS No.	Type	Value	Form
Ceramic materials and wares, chemicals	66402-68-4	N/A	N/A	N/A

Consult local authorities for acceptable exposure limits

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION (CONT'D)**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 particulate 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	Cream to light gray	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	2204°C / 4000°F (Estimated)	Relative density	2.7 (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	98 lb/ft ³ (1,570 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 | None Known |
| 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:	No data were identified for this product.
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
CARBOLITE	ISO10253:2006	EC ₅₀ : >1,000 EC ₉₀ : >1,000	Algae	72 hour
	ISO14669:1999	LC ₅₀ : >1,000 NOEC: 1,000	Crustacean	48 hour
	OECD 203: Fish Acute Toxicity	NOEC: >1,000	Fish	96 hour
	OSPAR Protocol 2006 (Sediment Reworker)	LC ₅₀ : >12,195 mg/kg NOEC: 12,195 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.
EU Waste Code:	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
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

General Information	This product is not hazardous for transport. It is not subject to transport classification under ADR, RID, AND, IMDG and ICAO.
14.1 UN Number	Not relevant not regulated as hazardous for transport.
14.2 UN proper shipping name	Not relevant, not regulated as hazardous for transport.
14.3 Transport hazard class(es)	Not relevant, not regulated as hazardous for transport.
14.4 Packing group	Not relevant, not regulated as hazardous for transport.
14.5 Environmental hazards	Not relevant, not regulated as hazardous for transport.
14.6 Special precautions for user	Not relevant, not regulated as hazardous for transport.
14.7 Transport in bulk according to Annex II MARPOL73/78 and the IBC Code	Not relevant, 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

EU Regulations

Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer, Annex I:	Not listed
Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer, Annex II:	Not listed
Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I:	Not listed
Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1:	Not listed
Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2:	Not listed
Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3:	Not listed
Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V:	Not listed
Directive 96/61/EC concerning integrated pollution prevention and control (IPPC): Article 15, European Pollution Emission Registry (EPER):	Not listed
Regulation (EC) No. 1907/2006, REACH Article 59(1):	Not listed

Other EU Regulations

This Safety Data Sheet complies with the requirements of the Regulation (EC) No. 1907/2006 as amended. The product is classified and labeled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended and respective national laws implementing EC directives.

Other EU National Regulations

Follow national regulations for work with chemical agents.

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: OTHER INFORMATION

Label Requirements

None

List of abbreviations

AND	International Carriage of Dangerous Goods by Inland Waterways
ADR	International Carriage of Dangerous Goods by Road
CAS	Chemical Abstract Service
CLP	Classification, Labelling and Packaging Regulation (Europe)
EC	European Commission
EC50	Effective Concentration resulting in the death of 50% of the population

SECTION 16: OTHER INFORMATION (CONT'D)

EC90	Effective concentration resulting in the death of 90% of the population
ICAO	Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG	International Maritime Dangerous Goods Code
LC50	Lethal concentration resulting in the death of 50% of the population
NOEC	No Observed Effect Concentration
mg/kg	milligram per kilogram
mg/L	milligram per Liter
PBT	Persistent, Bioaccumulative and Toxic
REACH	Registration, Evaluation and Authorization of Chemicals Regulation (Europe)
RID	International Carriage of Dangerous Goods by Rail
TWA	Time Weighted Average
µm	micron (or micrometer)
VOC	Volatile Organic Compound
vPvB	Very Persistent and Very Bioaccumulative

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.

Full test of any statements or R-phrases and H-phrases under Section 2 to 12

None

Training information

Follow training instructions when handling this material.

SDS Revisions

SDS prepared on 16 November 2018.

Disclaimer

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