SAFETY DATA SHEET
GraphiSeal

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name: GraphiSeal

Other Names: Preceramic Polymer Resin
Liquid ceramic precursor resin

Primary Use: GraphiSeal is a low viscosity liquid ceramic precursor resin which heat cures to silicon carbide (SiC). This coating is used to infiltrate and seal porous graphite, carbon fiber composites, ceramics and similar porous substrates used in harsh environments.

Chemical Family/Use:
High temperature ceramic-forming polymer

Uses Advised Against:
None known.

Distributor: Manufactured exclusively for
CeraMaterials
525 Silver Lake Rd
Dingmans Ferry, PA 18328
Emergency Contact: Jerry Weinstein
Product Stewardship: 518.701.6722

Manufacturer: AMS, LLC
49 Geyser Road,
Saratoga Springs, NY 12866
Emergency Phone: 518.729.0260

24hr Emergency Contact Info:

CHEMTREC US Transportation:	800.424.9300
CHEMTREC International Transportation:	703.741.5500

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SECTION 2 - HAZARDS IDENTIFICATION

Physical Hazards: Not classified.
Health Hazards: Serious eye damage/eye irritation. Category 2B
OSHA defined hazards: Not classified.

Signal word, symbols, hazard and precautionary statements:

Hazard Pictogram

Signal Word: Warning
Hazard Statement: Causes eye irritation

Precautionary Statements

Do not handle until all safety instructions have been read and understood. Wear protective clothing, gloves, face and eye protection. Do not eat, drink, or smoke while using this product.

Prevention: Wash thoroughly after handling.
Response: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice or attention.
Storage: Store away from incompatible materials.
Disposal: Dispose of waste and residues in accordance with local, state, and federal regulations.

Hazard(s) not otherwise classified (HNOC):

When catalyzed and exposed to rapid heating to high temperatures the material can react vigorously, also if in contact with strong base materials, releasing hydrogen gas. This reaction is exothermic and may ignite.

Supplemental Information: Not applicable.

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SECTION 3 - COMPOSITION

Chemical & Common Name	CAS#	% By Weight	PEL	TLV
Polysiloxane with functional groups	None	> 99	Not Established	Not established
Impurities & stabilizing additives	Not applicable			

SECTION 4 - FIRST AID MEASURES

Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin, and eye contact, and ingestion.

Skin:
Wipe off as much material as possible with a cloth, then thoroughly wash with soap and water for 15 minutes or until all traces of polymer are removed. Consult a physician if persistent irritation is encountered.

Eyes:
In case of eye contact, immediately flush with water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If possible, have eye bath available. Do not rub eyes. If irritation persist seek medical attention, preferably from an ophthalmologist..

Inhalation:
Unlikely since polymer is a low vapor pressure liquid. If irritation occurs, seek medical advise.

Ingestion:
Unlikely, but if ingestion occurs immediately wash out mouth with water (if individual is conscious). Never give fluids or induce vomiting if patient is unconscious or having convulsions. Seek medical attention.

SECTION 5 - FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media.
Recommended extinguishing media: Water spray, foam, carbon dioxide, dry chemical, or dry sand. Ensure extinguishing agent is suitable for surrounding combustible materials.

Flash Point: **>197°F (93°C)**
Autoignition Temperature: **Not determined**
Flammability Limits in Air: **Not determined**

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Hazardous Decomposition Products:

Thermal breakdown of this product during fire or very high heat conditions may evolve the following hazardous decomposition products:

- **Carbon oxides and traces of incompletely burned carbon compounds**
- **Silicon dioxide**

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Containment & Cleanup:

Determine whether to evacuate or isolate the area according to your local emergency plan. Observe all personal protection equipment recommendations described in Sections 5 and 8. When possible, scoop spilled material into an appropriate container. Clean up remaining materials from spill with suitable absorbent. Clean the area as appropriate as some silicone materials, even in small quantities, may present a slipping hazard. Final cleaning may use steam, detergent or solvent. Dispose of the saturated absorbent and cleaning materials appropriately, since spontaneous heating may occur. Local, state, and federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup. You will need to determine which federal, state, and local laws and regulations apply. Section 13 and 15 of this Safety Data Sheet (SDS) provide information regarding certain federal and state requirements.

Note: See section 8 for Personal Protective Equipment for Spills. If additional information is required, please call our office at 518-701-6722.

SECTION 7 - HANDLING AND STORAGE

GraphiSeal is not regulated under OSHA 29 CFR 1910.106. & is IATA rated non-hazardous.

Precautions for safe handling.

Use with adequate ventilation.

Avoid eye and skin contact.

Avoid open flame, spills on hot surfaces, and all sources of ignition.

Conditions for safe storage, including any incompatibilities.

GraphiSeal may crosslink at room temperature when catalyzed with platinum catalysts, evolving minute amounts of hydrogen. Store in a chemical refrigerator or freezer, where possible. Containers should be vented periodically to prevent rupture.

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SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Component Exposure Limits.
There are no components with workplace exposure limits.

Appropriate engineering controls.
Local ventilation: None should be needed.
General ventilation: Recommended

Individual protection measures, such as personal protective equipment.
Skin Protection:
Wear personal protective equipment (e.g protective gloves and clothing), as necessary to prevent skin contact. Rubber or neoprene gloves are recommended.

Eye Protection:
Use proper eye protection – safety glasses in compliance with OSHA and/or European regulations. OSHA compliant chemical splash googles are advised.

Respiratory Protection:
Not required under normal conditions of use.

Note:
These precautions are for room temperature handling. Use at elevated temperatures or aerosol/spray applications may require added precautions.

Comments:
When heated to temperatures above 302°F (150°C) for long periods in the presence of air, product can form small amounts of formaldehyde vapors. Formaldehyde is a potential cancer hazard, a known skin and respiratory sensitizer, and an irritant to the eyes, nose, throat, skin, and digestive system. Safe handling condition may be maintained by keeping vapor concentrations below the OSHA Permissible Exposure Limit for formaldehyde.

The evaluation of workplace hazards and the identification of appropriate respiratory protection is best performed, on a case by case basis, by a qualified Industrial Hygienist.

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SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid	**Freezing / Melting Point:**	Not established
Appearance:	Colorless, clear, slightly hazy	**Density:**	0.99 - 1 g/cc
Odor:	Mild to none	**Decomposition Temperature:**	> 482°F | 250°C
Flash Point:	> 197°F | 93°C	**Vapor Density (Air = 1):**	Not established
Vapor Pressure:	Not established		

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability: Evolves minute amounts of hydrogen on standing at room temperature. Use adequate ventilation.

Conditions to Avoid: Avoid excess heat and oxidizing materials.
GraphiSeal is an experimental material; its properties with all classes of reactants have not been evaluated. GraphiSeal contains Si-H sites which are known to be reactive. Formulations containing Pt catalyzed GraphiSeal stored at room temperature should be carefully monitored and vented monthly to prevent pressure buildup. Please contact CeraMaterials LLC at 518-701-6722 or sales@ceramaterials.com if you have specific questions about using GraphiSeal. Please see sections 5 and 7.

Hazardous Decomposition Products: May form carbon dioxide, carbon monoxide, hydrogen, silicates, and various hydrocarbons.

Hazardous Polymerization: Not expected.

SECTION 11 - TOXICOLOGICAL INFORMATION

Toxicological testing of GraphiSeal has not been performed.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicological testing of GraphiSeal has not been performed.

SECTION 13 - DISPOSAL CONSIDERATIONS

Disposal
Once converted to ceramic, material can be disposed of in the same manner as ceramic powders. Observe all federal, state, and local government regulations. Any processing, alteration or chemical additions to the product, as purchased, may alter the disposal requirements. Under Federal regulations, it is the waste generator's responsibility to properly characterize a waste material, to determine if it is a "hazardous" waste. Check local, regional, state or provincial regulations to identify all applicable disposable requirements.

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SECTION 14 - TRANSPORT INFORMATION

Not regulated.

SECTION 15 - REGULATORY INFORMATION

United States Federal Regulations:

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are listed on or exempt from the U.S EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subt. D)	**Not regulated.**
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)	**Not listed.**
CERCLA Hazardous Substance List (40 CFR 302.4)	**Not listed.**
Superfund Amendments & Reauthorization Act of 1986 (SARA) Hazard Categories	**Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No**
SARA 302 Extremely Hazardous Substance	**Not listed.**
SARA 311/312 Hazardous Substance	**Yes**
SARA 313 (TRI reporting)	**Not regulated.**
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List	**Not regulated.**
Clean Air Act (CCA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)	**Not regulated.**
Safe Drinking Water Act (SDWA)	**Not regulated.**

United States State Regulations:

US. Massachusetts RTK Substance List	**Not regulated.**
US. New Jersey Worker and Community Right-to-Know-Act	**Not listed.**
US. Pennsylvania Worker and Community Right-to-Know Law	**Not listed.**
US. Rhode Island RTK	**Not regulated.**
US. California Proposition 65 - This product contains the following chemical(s) known to the State of California to cause cancer and birth defects or other reproductive harm.	**None Known.**

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International Inventories:

Country(s)	Inventory Name	On Inventory
Australian	Inventory of Chemical Substances Australia (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
	Non-Domestic Substance List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes

Notes:

A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

SECTION 16 - OTHER INFORMATION

Effective Date: December 18, 2019
SDS Prepared By: CeraMaterials

Disclaimer
The information presented herein has been gathered from reference materials and is presented in good faith and believed to be accurate as the effective date of this Safety Data Sheet. Employers may use this SDS to supplement other information gathered by them in their efforts to assure the health and safety of their employees and the proper use of the product. This summary of the relevant data reflects professional judgement; employers should note that information perceived to be less relevant has not been included in this SDS. Therefore, given the summary nature of this document, CeraMaterials does not extend any warranty (expressed or implied), assume any responsibility, or make any representation regarding the completeness of this information or its suitability for the purposes envisioned by the user.

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