

Ceraset[®] Polyureasilazane

Heat Curable Ceramic Precursor

Product Code: 226644



Exactly your chemistry.

Product and Test Information

MANUFACTURER

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FEATURES

- Low viscosity
- Rapid solidification
- Multiple curing methods available
- Very high ceramic yield
- Specifically designed for Ceramic Matrix Composites use
- Good adhesion to metals and ceramics
- Convenient method to prepare SiC and Si₃N₄ ceramics

PRODUCT DESCRIPTION

Ceraset[®] Polyureasilazane is a patented liquid polysilazane that can be easily converted into a solid pre-ceramic and then pyrolyzed into silicon carbide or silicon nitride.

PRODUCT APPLICATIONS

Ceraset[®] Polyureasilazane provides a convenient method to prepare pre-ceramic and ceramic materials.

Suggested applications include: Ceramic precursor infiltrant, polymer infiltration/pyrolysis (PIP) and ceramic fibers.

PACKAGING

Ceraset[®] Polyureasilazane is available in 1 gallon containers, 5 gallon pails and 55 gallon drums. Contact a Sales Representative to determine the packaging required to suit your needs.

TECHNICAL DATA

Appearance:	Clear to pale yellow liquid
% Resin:	100% solids as a liquid
Flash point:	75°C
Density of cured solid:	1.120 g/mL
Density of ceramic from pyrolysis:	2.4 g/mL
VOC:	N/A
Viscosity:	50 cps @ 25°C
Specific gravity of liquid:	0.96
Refractive index:	1.4896 @ 23°C

SOLVENTS

Ceraset[®] Polyureasilazane can be diluted with dry aprotic solvents such as alkanes, aromatic hydrocarbons, ethers, ketones and esters.

Ceraset[®] Polyureasilazane is hydrolytically sensitive and will slowly generate ammonia upon contact with moisture. Reaction will also occur with other protic substances such as acids, bases and alcohols.

CURE CONDITIONS

Depending on the free radical initiator employed, cure from liquid to solid can be accomplished in times ranging from 1 to 90 minutes over a temperature range of 90°C to 190°C. The initiators are typically dissolved in solvent free polymer at the 0.5 to 1.0 wt% level based on the weight of polymer employed. Suggested initiators include: 2,5-dimethyl-2,5-(2-ethylhexanoylperoxy) hexane and dicumyl peroxide.

Cure without the addition of initiators, can be effected by heating to 180°C to 200°C.

PYROLYSIS CONDITIONS

Pyrolysis of cured **Ceraset[®] Polyureasilazane** results in progressive conversion of the polymer to an amorphous and ultimately crystalline ceramic phase. Pyrolysis up to 1400°C results in amorphous ceramic; crystallization begins above 1400°C.

The final phase is dependant on the pyrolysis atmosphere and the presence of any filler which may seed particular ceramic phases.

Inert gas pyrolysis results in a silicone carbide ceramic. Pyrolysis in an ammonia containing atmosphere results in a silicone nitride ceramic.

SHELF LIFE

Ceraset[®] Polyureasilazane has a shelf life of 2 years for material in the unopened original containers.

Usable life will be determined by the precautions taken to keep containers tightly sealed and protected from moisture.

CLEAN UP

Proper clean-up is essential. Clean tools immediately after use with acetone or mineral spirits followed by soapy water. Cured material cannot be removed with solvent.

HANDLING PRECAUTIONS

May cause lung irritation. Use adequate ventilation. In enclosed areas, respiration equipment is necessary. Avoid contact with skin and eyes. Wear necessary protective equipment. Keep uncured product away from flame, sources of ignition and moisture. Prevent uncured product from coming contact with water. **FOR INDUSTRIAL USE ONLY.** Refer to MSDS for more information.

TECHNICAL SERVICE

Technical chemists are available to answers any performance, application, removal methods and chemical specifications. Call 800.585.2151 for direct service.

This product sheet is not designed to serve as or be substituted for a MSDS on this product. A MSDS is available from KiON Specialty Polymers by calling 800.585.2151.

Information on this product sheet is subject to change without notice as a result of experience and ongoing product development. It is the user's responsibility to verify that this sheet is current prior to use. The user accepts all risk associated with any use of this product for any purpose other than as recommended herein.

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