Amber-E™ VP000 (Prepreg Polysilazane Resin)

Heat-Curable Ceramic Precursor

Product Description:

Amber-E™ VP000 Prepreg Polysilazane is a soft solid that deforms under pressure and can be readily thermoset to a hard rigid solid by heating to 180°C–200°C. Alternatively, **Amber-E™ VP000** can be cured at lower temperatures by adding a small quantity of a free radical initiator. The resulting solid can then be pyrolyzed to either silicon carbide or silicon nitride by heating to 1,000°C. **Amber-E™ VP000** is a firm solid when cooled, is soft and tacky at room temperature, and becomes a viscous liquid when warmed.

Major Application:

CMC Prepregs.

Availability:

Unrestricted availability in North America; contact Hathaway Advanced Materials, Inc. for availability in other regions.

Physical Properties:

Color: Pale yellow liquid.
% Resin: 100% solids as a liquid
Density of Liquid: 1.020
Density of Cured Solid: 1.120
Density of Ceramic from Pyrolysis: 2.4
Viscosity: Not Determined (Highly Viscous Material)
VOC Content: N/A

Solvents:

Amber-E™ VP000 can be diluted with dry aprotic solvents, such as alkanes, aromatic hydrocarbons, ethers, ketones, and esters. **Amber-E™ VP000** is hydrolytically sensitive and will slowly generate ammonia upon contact with moisture. The polymer will also react 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 peroxides are typically dissolved in solvent free polymer at the 0.5wt% to 1.0wt% level, based on the weight of polymer employed. Cure without the use of peroxide can be effected by heating to 180-200°C.

Hathaway Advanced Materials, Inc.
US [office] (614)361-2162 Canada [laboratory] (905) 795-8952
https://hathmat.com email: info@hathmat.com

Pyrolysis Conditions:

Pyrolysis of cured **Amber-E™ VP000** Prepreg Polysilazane results in progressive conversion of the polymer to an amorphous and ultimately crystalline ceramic phase.

Cleanup:

Clean tools immediately after use with acetone or mineral spirits. Solvent cleaning can be followed by a wash with soapy water. Cured material cannot be removed with solvent. Proper cleanup of equipment is essential.

Handling:

Storage Life: Minimum of 2 years for unopened containers. Pot Life: Usable life will be determined by the precautions taken to keep containers tightly sealed and protected from moisture. Disposal: Consult Local Regulations.

Safety:

Use safety glasses and adequate ventilation. Protect skin from exposure using gloves and appropriate clothing. Seek medical attention if ingestion or overexposure is suspected.
Keep uncured product from flame, all ignition sources, and moisture. This product is intended for professional use by persons familiar with this product data sheet, the Safety Data Sheet (SDS) that accompanies product shipments, and applicable health, safety, and environmental practices and regulations. Contact Hathaway Advanced Materials for advice concerning this product's suitability for specific applications.

Ordering:

Standard Sizes
8 pounds [1 gallon /3.78 liter container]
40 pounds [5 gallon /18.9 liter pail]
400 pounds [55 gallon / 208 liter drum]

Disclaimer:

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.

Hathaway Advanced Materials, Inc.
Product Sheet Issue Date: August 17, 2020

Hathaway Advanced Materials, Inc.
US [office] (614)361-2162 Canada [laboratory] (905) 795-8952
https://hathmat.com email: info@hathmat.com