

PR-1665 cryogenic adhesive

Description

PR-1665 is a high tear and tensile strength cryogenic potting and molding compound. It has a service temperature range from -320°F (-196°C) to 225°F (107°C), with intermittent excursions up to 275°F (121°C). This material is designed for applications exposed to cryogenic temperatures where high flexibility and strength are required.

PR-1665 is a two-part, chemically curing polyurethane compound. The product contains no fillers, solvents, plasticizers or MBOCA (4,4'-methylene-bis-(2-chloroaniline))* . The material may be extended with metal and/or inorganic fillers to enhance rheological, mechanical or electrical performance properties for a wide variety of applications.

The following tests are in accordance with PRC-DeSoto International specification test methods.

Application properties (typical)

Color	
Part A	Dark amber
Part B	Straw
Mixed	Amber
Mixing ratio	Part A:Part B
By weight	36:100
Viscosity	
(Brookfield #4 @ 10 rpm), Poise (Pa-s)	
Part A	600 (60)
Part B	250 (25)
Mixed	370 (37)
Application life	
@ 75°F (24°C), 50% RH, hours	1.5

Performance properties (typical)

Cured 24 hours @ 75°F (24°C) and 40 hours @ 130°F (54°C)	
Cured specific gravity	1.07
Nonvolatile content, %	99
Ultimate cure hardness, Durometer A	75

Modulus, psi (kg/cm ²)	
@ 100%	500 (35.15)
@ 300%	1000 (70.3)
Tensile strength, psi (KPa)	5000 (34475)
Ultimate elongation, %	600
Tear strength (Die C), lbs./in.	340
Lap shear strength, (Aluminum-Aluminum)	
@ 75°F (24°C), psi (kg/cm ²)	1200 (84.3)
Cryogenic performance @ -300°F (-184°C)	
Tensile strength, psi (KPa)	23,000 (159,000)
Ultimate elongation, %	8
Modulus of elasticity, psi (kg/cm ²)	6.3 X 10 ⁵ (44,289)
Lap shear strength (metal-metal)	5600 (400)
Fungus resistance (MIL-E-5272)	Non-nutrient
Volume resistivity, ohm-cm	
@ 75°F (24°C)	6 X 10 ¹¹
Surface resistivity, ohms	
@ 75°F (24°C)	1 X 10 ¹²
Insulation resistance, megohms	
@ 75°F (24°C)	85,000

Note: The application and performance property values above are typical for the material, but not intended for use in specifications or for acceptance inspection criteria because of variations in testing methods, conditions and configurations.

Surface preparation

To obtain uniform release of the cured sealant to primed substrates, the surfaces should be cleaned with solvents. Contaminants such as dirt, grease, and/or processing lubricants must be removed prior to sealant application.

A progressive cleaning procedure should be employed using the appropriate solvents and new lint free cloth (reclaimed solvents or tissue paper should not be used). Always pour solvent on the cloth to avoid contaminating the solvent supply. Wash one small area at a time.

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It is important that the surface is dried with a second clean cloth prior to the solvent evaporating to prevent the redeposition of contaminants on the substrate.

Substrate composition can vary greatly. This can affect sealant adhesion. It is recommended that adhesion characteristics to a specific substrate be determined prior to application on production parts or assemblies.

For a more thorough discussion of proper surface preparation, please consult the SAE Aerospace Information Report AIR 4069. This document is available through SAE, 400 Commonwealth Avenue, Warrendale, PA 15096-0001.

Mixing instructions

PR-1665 is supplied in a two-part kit. Part A crystallizes upon standing. Heat to 240 - 260°F (116 - 127°C) with good stirring until clear and homogeneous. Allow to cool before using. Part B may become turbid or crystallize upon standing. Liquify by warming to 120 - 140°F (41 - 60°C) with good stirring until clear and homogeneous. Allow to cool before using. Mix according to the ratios indicated in the application properties section.

The following mixing and vacuum degassing procedure is recommended for applications requiring a cured product free of air and voids. Carefully weight parts A and B in the amounts indicated into a clean and dry, metal, glass or plastic container. The container volume should have four times the volume of the material to be mixed. It is also desirable that the mixing container have as large as possible a surface area to volume ratio. Mix thoroughly using a metal mixing paddle or spatula,

scraping well the container side and bottom. For volumes up to two quarts, a laboratory desiccator connected to a vacuum pump is suitable. The degassing equipment should be capable of obtaining a pressure of two millimeters of mercury or less. degas the material until foaming subsides. This will usually require five minutes at two millimeters pressure for a two quart volume. If the product is to be applied with an extrusion gun, carefully pour the material into the extrusion gun cartridge held at a 30 to 40 degree angle to minimize folding. It may be necessary to vacuum degas the filled cartridge for 1 - 2 minutes to remove any air entrapped during the filling process.

Storage life

The storage life of PR-1665 is at least 12 months when stored at temperatures below 80°F (27°C) in original unopened containers.

Health precautions

This product is safe to use and apply when recommended precautions are followed. Before using this product, read and understand the Material Safety Data Sheet (MSDS), which provides information on health, physical and environmental hazards, handling precautions and first aid recommendations. An MSDS is available on request. Avoid overexposure. Obtain medical care in case of extreme overexposure.

For industrial use only. Keep away from children.

For emergency medical information call 1-800-228-5635.

For sales and ordering information call 775-323-7542

***MBOCA registered tradename of duPont.**

All recommendations, statements, and technical data contained herein are based on tests we believe to be reliable and correct, but accuracy and completeness of said tests are not guaranteed and are not to be construed as a warranty, either expressed or implied. User shall rely on his own information and tests to determine suitability of the product for the intended use and assumes all risks and liability resulting from his use of the product. Seller's and manufacturer's sole responsibility shall be to replace that portion of the product of this manufacturer which proves to be defective. Neither seller nor manufacturer shall be liable to the buyer or any third person for any injury, loss, or damage directly or indirectly resulting from use of, or inability to use, the product. Recommendations or statements other than those contained in a written agreement signed by an officer of the manufacturer shall not be binding upon the manufacturer or seller.