

PR-1500 potting/molding application guide

Introduction

PRC-DeSoto International PRC® polyurethane materials are designed for potting electrical connectors and/or molding electrical cable assemblies. These polyurethane compounds are suitable where high dielectric, high abrasion, flexibility, high tensile strength, and excellent hydrolytic stability are required.

Note: It is important to read and understand the MSDS, process specifications, and technical data sheets before working with these products.

Surface preparation

Immediately before applying material to primed substrates, connectors or metal surfaces should be cleaned with solvent i.e. Desoclean® 110. Contaminants such as dirt, grease, and/or processing lubricants must be removed prior to sealant application. Do not expose wire insulation and inserts to the cleaning solvent beyond the time necessary for adequate cleaning.

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.

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.

Application of primer

For maximum adhesion strength between PR-1500 series potting/molding compounds and the material to which it is to be bonded, the following surface preparations are required:

Note: Do not dip priming brush into primer supply. To maintain an uncontaminated primer supply, pour a small portion of primer into a clean container from which it should be used. Reseal primer supply immediately after portion has been removed.

Metal

Stainless steel and aluminum must be primed with PR-420 in order for PR-1500 potting compounds to adhere to them. Thoroughly mix Part A with Part B of the PR-420 primer. Do not mix more than can be used within the application life. Brush a thin film of mixed PR-420 on all surfaces of connectors and on wire, but not on the insulation. Let primer dry for 30 minutes at 75°F (24°C). If the primed surface becomes contaminated, reclean lightly with methyl ethyl ketone and dry. Stripping the primer from the connector and repriming is not necessary. Please read the technical data sheet for PR-420 for further details.

Neoprene

To obtain good adhesion to neoprene insulation, the surface should be abraded with a suitable abrasive or wire brush to remove grease, oil, wax or mold release. Remove rubber particles with a dry oil-free brush. Apply a liberal coat of PR-1523-M primer to the clean neoprene surface by brush and allow to dry for approximately 30 minutes at 75°F (24°C). After 30 minutes drying time, wipe off excess PR-1523-M primer with a clean, gauze sponge and start the potting/molding procedure. Drying time of PR-1523-M should not exceed four hours at 75°F (24°C) before potting or molding. If primed surface becomes contaminated or potting or molding is not accomplished with four hours after application or PR-1523-M, buff neoprene and repeat priming procedure.

Note: PR-1523-M is hygroscopic and must be kept free of moisture. When PR-1523-M hydrolyzes, a dark grainy precipitate is formed decreasing the primer's usefulness. Material containing precipitate should not be used.

Polyvinyl chloride

To obtain good adhesion to polyvinyl chloride insulation, the surface should be tackified with methyl ethyl ketone. The use of PR-1543 may be necessary only with some formulations of polyvinyl chloride. Therefore, it is suggested tests be made to determine the adhesive strength of PR-1500 series potting/molding compounds to the polyvinyl chloride in question.

If a primer is required, then apply a thin coat of PR-1543 primer to the tackified surface by brush and allow to dry for approximately 30 minutes at 75°F (24°C). After 30 minutes drying time, wipe off excess PR-1543 primer with a clean, gauze sponge and start the potting/ molding procedure. Drying time of PR-1543 should not exceed four hours at 75°F (24°C) before potting or molding. If primed surface becomes contaminated or potting or molding is not accomplished with four hours after application or PR-1543, buff primed surface and repeat priming procedure.

Note: PR-1543 is hygroscopic and must be kept free of moisture. When PR-1543 hydrolyzes, a precipitate is formed decreasing the primer usefulness. Material containing precipitate should not be used.

Teflon and other fluorocarbons

To obtain good adhesion to insulation made of Teflon and other fluorocarbon resins, it is essential the insulation be etched or treated to provide a bondable surface. After neutralization the enchant, in accordance with the manufacturer's instructions, apply PR-1500 series potting/molding compounds directly to the etched surface without primer.

Repair

To obtain good adhesion to previously cured PR-1500 series potting/molding compounds, the surfaces should be buffed with a suitable abrasive to remove grease, oil, wax or mold release. Remove rubber particles with a dry, oil free brush.

Caution: Do not use solvents for cleaning cured PR-1500 series products. Apply new PR-1500 series product directly to buffed surface and cure as recommended. No primer is required.

Mixing instructions

Proper mixing and correct proportions are extremely important to obtain optimal results. Mixing by experienced personnel at a central location is recommended.

Two part kits

Do not open containers until ready to use. Mix the entire content of kit, parts A and B. Do not proportion out these products nor attempt to reseal a kit for future use.

PR-1535, PR-1538, PR-1547

Part A will solidify partially at room temperature. Whenever this condition is found, loosen lid and warm on a hot plate under a fume hood to $220\pm 10^{\circ}\text{F}$ ($104\pm 6^{\circ}\text{C}$). Do not heat over 230°F (110°C). When warming the material, use a thermometer to determine the actual material temperature. Liquefaction is complete when the material becomes smooth and uniform in appearance and loses all signs of graininess. Stirring is essential during liquefaction to provide a uniform material and to hasten melting. Care should be taken to dissolve all solidified Part A around the top of container. Trace quantities of unliquefied Part A will cause premature solidification.

PR-1590, PR-1592

Part A will solidify partially at room temperature. Whenever this condition is found, loosen lid and warm on a hot plate

under a fume hood to $250\pm 10^{\circ}\text{F}$ ($121\pm 6^{\circ}\text{C}$). Do not heat over 260°F (127°C). When warming the material, use a thermometer to determine the actual material temperature. Liquefaction is complete when the material becomes smooth and uniform in appearance and loses all signs of graininess. Stirring is essential during liquefaction to provide a uniform material and to hasten melting. Care should be taken to dissolve all solidified Part A around the top of container. Trace quantities of unliquefied Part A will cause premature solidification. Do not store Part A at temperatures exceeding 100°F (38°C).

Note: After removing a portion of Part B from a full container, moisture in the air in the empty portion of the Part B container tends to cause the remaining material to form a skin during extended periods of standing. This material may be used if the skin is removed. If part B has solidified, it will be necessary to liquefy the material as stated above before the skin can be removed.

Where a dense compound free of voids is required, it is recommended that the mixed material be degassed before applications are made. Standard vacuum equipment may be used or, for small usage, the material may be degassed in a standard laboratory desiccator connected to a vacuum pump under a vacuum of 28 inches Hg minimum. The material is correctly degassed when the foam is observed to break/collapse.

Premixed and frozen (PMF)

Polyurethane potting and molding compounds in a PMF form should be stored in a freezer at -40°F (-40°C) or below for optimal retention of application properties and shelf life.

Water bath thaw: Place the PMF cartridge upright in a $100\pm 5^{\circ}\text{F}$ ($37\pm 3^{\circ}\text{C}$) water bath for approximately 30 minutes. Upon removal from the bath, carefully dry the exterior of the cartridge before using.

Health and safety

Before using a 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
1-800-AEROMIX (237-6649).**

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