

PRECIDIUM™ P-180D

DESCRIPTION

PRECIDIUM™ P-180D is a solvent-free, zero VOC, two-component urethane primer designed for use as an adhesion primer with fast-set systems. It can be top coated in as little as 3 hours (depending on catalyst level and temperature), eliminating overnight cure times experienced with conventional primers. It significantly improves adhesion and corrosion resistance of polyurea and polyurethane fast set elastomers.

PRECIDIUM™ P-180D can be applied by spray, brush, or roller but is typically rolled in two thin coats. The first coat penetrates into the substrate, and the second coat provides an optimum adhesion coat for a membrane.

PROPERTIES

Mix Ratio	1:1 (Volume)
Resin Viscosity	850-1050 cps
ISO Viscosity	10-100 cps
Density	1.15 g/ml
Application Temperature	Minimum 10°C (50° F), or 5° F above dew point*
Pot Life	2 Hours*
Set Time	4-6 Hours*
Recoat Window	2-16 Hours*
Shore D Hardness	75 approx.
VOC	Zero
Adhesion	Refer to table below

**For cooler temperatures keep product indoors until application.*

STORAGE

Store product in a cool and dry place for product integrity. Store in tightly sealed containers to protect product from moisture and foreign materials.

PRODUCT SAFETY

An SDS is available from Quantum Chemical,

AVAILABILITY

PRECIDIUM™ P-180D is packaged in 2-gallon (1 gallon Resin and 1 gallon ISO) or 10-gallon (5 gallon Resin and 5 gallon ISO) kits.

FEATURES AND BENEFITS

- **Solvent Free** - Eliminates solvent blisters. Reduces long waiting time. Maintains zero VOC of cured system. No flammability issues.
- **Low Viscosity/Long Pot Life** - Spray with conventional equipment. Excellent penetration into concrete or wood. Good coverage on steel.
- **Anticorrosive** - Significant improvement in corrosion resistance. Eliminates corrosion cells caused by pinholes.
- **Penetrates into Concrete** - Strengthens surface of concrete providing twice the adhesive strength of topcoat. Eliminates pinholes.
- **Can Be Catalyzed** - Addition of Catalyst DA can shorten cure time for small repairs or urgent projects.

INSTRUCTIONS

Substrate Preparation:

Substrate should be clean, dry and free of any loose or foreign material. Proper substrate preparation will ensure optimum performance.

Metal: Should be blasted to a 2 mil profile for best results.

Concrete: Should be dry (new concrete should be cured for a minimum of 30 days) and free of any laitance, scale or contaminants. For more details on concrete preparation see SSPC SP-13/NACE No. 6 or ICRI Guideline No. 03732.

Wood: Must be dry and free of contaminants. It is good practice to apply the primer to a small test area prior to starting project. Presence of excess foam in cured primer indicates moisture content is too high.

Mixing:

Thoroughly mix **PRECIDIUM™ P-180D RESIN** prior to adding ISO. Mix equal parts by volume P-180D RESIN and P-180D ISO. Mix by hand or with a mechanical mixer at low speed. Care must be taken to avoid incorporating air into the mixture as this will cause foam to be generated during curing. Mix for approximately 1 minute to achieve a uniform consistency. Mixed, uncatalyzed P-180D will have a pot life of approximately 1 hour. Elevated temperature and/or addition of catalyst will shorten pot life. Mix only the quantity you intend to use immediately. Do not leave mixed primer in spray equipment longer than necessary.

Application:

Apply using spray, brush or roller. One wet pass is recommended. Do not cover the profile on blasted metal. A heavier film will slow cure time and can produce film irregularities. Porous concrete and wood may require a heavier film and back rolling to fill any voids. Avoid pooling in low areas. Primer does not need to be tack free before applying topcoat. Touch dry is acceptable; however, do not put area back into service before primer has completely cured - approximately 12 hours. Apply topcoat in multiple thin passes to avoid excess exotherm. Exotherm can cause film stress in topcoat and pull away uncured primer.

Allow a minimum of 2 hours and a maximum of 24 hours cure time before topcoat is applied. Do not apply a membrane before the P180D Primer is touch dry.

Cure Schedule (at 20°C / 68° F)

- touch dry 3 hours
- tack free 5 hours
- topcoat 3 to 24 hours
(for maximum adhesion
do not exceed 12 hours)

Clean-up:

Clean all tools and equipment immediately with Acetone. If product has begun to set a more powerful cleaner such as N-Methylpyrrolidone (NMP) may be required to effectively clean equipment.

Return to Service:

Allow a minimum of 24 hours cure before putting into service.

OTHER

Recommendations for the use of our products are based on the specifications of this technical data and the test results published herein. Manufacturer and seller are not responsible for results where the product is used under any conditions outside those specified or beyond our control. The purchaser of this product must rely on his own judgement in determining suitability for his purpose, and in applying directions as to handling and use specified herein. Quantum Chemical makes no warranty, expressed or implied, except that if this product proves on inspection to be defective, Quantum Chemical will replace such quantity of the product proven to be defective or refund the purchase price of defective product. Labour costs and other consequential damages are hereby excluded. No representative or purported agent of Quantum has the authority to change this warranty. The information contained herein is subject to change without notice. If in doubt, contact your Quantum Chemical Representative for current Technical Data Sheets (TDS).

The following information summarizes the test results obtained with **PRECIDIUM™ P-180D**.

ADHESION

Adhesion tests were carried out using a *PosiTest Pull-Off Adhesion Tester AT-CM*.

Substrate	Primer Treatment	Average Adhesion - PSI (mode*)
Steel (sandblasted)	Overnight/Sanded	1552 (DF)
Steel (sandblasted)	3-Hour Cure	1924 (DF)
Aluminum (sandblasted)	3-Hour Cure	1420 (AF)
Stainless Steel (lightly blasted)	No P-180D	1116 (AF)
Stainless Steel (lightly blasted)	3-Hour Cure	924 (AF)
Stainless Steel (lightly blasted)	5-Hour Cure	1262 (AF)
Concrete (precast)	No P-180D	625 (SF)
Concrete (precast)	Overnight/Sanded	1175 (SF)
Concrete (precast)	3-Hour Cure	600 (P/T F)
Concrete (precast)	6-Hour Cure	1006 (SF)

* DF - Dolly Failure; AF - Adhesive Failure; SF - Substrate Failure; P/T F - Primer/Topcoat Interface Failure

For all substrates tested adhesion was increased when **PRECIDIUM™ P-180D** was applied and properly cured. For concrete, adhesion strength was doubled as a result of the use of P-180D. The loss of adhesion encountered with the 3-hour cure can be explained by bubbling/foaming which occurred at the primer topcoat interface. It is important that the primer be sufficiently cured and that it is not wet when the topcoat is applied. Ideal recoat time for P-180D to maximize adhesion is a minimum of 5 hours and a maximum of overnight (12 hours). These results were obtained at room temperature. Actual schedule will depend on ambient temperature.

CORROSION

Corrosion tests were carried out in Q-Fog Cyclic Corrosion Tester CCT 600.

Test Method: All samples were tested according to the CCT-1 cyclic corrosion test. This test consists of cycles of 4 hours of salt fog at 35°C, 2 hours dry off at 50°C, ½ hour dry off at 40°C and 2 hours at 50°C/95% relative humidity. The cycle is then repeated. Total exposure time of the samples was 1600 hours. This cyclic test was chosen because it is generally considered to be a more severe test than continuous salt spray and provides a better indication of performance in typical service.

Description of Test Specimens: All test specimens were applied to sandblasted steel panels.

Figure #1: PRECIDIUM™ P-180D Primer no topcoat. This sample was used to evaluate corrosion resistance of P-180D on its own.



Figure #2: Solvent free two component primer (Standard). This sample was used as a control to determine the corrosion resistance of a P-180D type of product with no anti-corrosion additives employed.



Figure #3: Conventional solvent based epoxy primer and urethane topcoat system. This sample was used as benchmark for a complete primer/topcoat system. The system tested is a widely used commercial system for industrial maintenance applications.



Figure #4: Solvent based epoxy primer with fast set 100% solids topcoat. This sample demonstrates the best corrosion protection previously available with a fast set topcoat.



Figure #5: Shows the **PRECIDIUM™ P-180D** Primer with **PRECIDIUM™ LS-160D** topcoat. LS-160D is a fast set 100% solids aliphatic topcoat. This sample demonstrates the performance improvement achieved with the P-180D primer/solvent free elastomer topcoat system.



RESULTS

The corrosion inhibitor package employed with **PRECIDIUM™ P-180D** made a significant improvement in the performance of a solvent free primer as seen in figure 1 and 2.

The performance of a solvent free topcoat exceeds that of the conventional urethane as seen in figure 3 and 4. The conventional system has significant creep and blistering along the scribe and around the edges of the panel. The solvent free topcoat provides much better corrosion resistance, but still has noticeable blistering along the scribe lines.

PRECIDIUM™ P-180D Primer with a solvent free topcoat had exceptional performance. The scribe lines are barely visible and no blistering is present. This demonstrates a vast improvement in corrosion performance.