PSX® 700 EPOXY SILOXANE
QUALITY ASPECTS AND APPLICATION GUIDE

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INTRODUCTION

PSX® 700 Epoxy Siloxane is a high quality solvent free coating developed to achieve long lasting corrosion protection when used as a durable finish over anti corrosive primer systems. This guide is designed to advise how to maximize the advantages this product can offer.

To achieve the maximum performance and cosmetic finish PSX® 700 should be applied according to the application instructions on the technical data sheet. PSX® 700 is a solvent free material and this composition is the main reason for a number of precautions that should be taken into account during application.

1. COLOUR AND GLOSS

PSX® 700 is formulated with a very high colour pigment loading to ensure excellent hiding power when applied as a one coat finish directly over zinc dust based primers and other primer and intermediate products. The full range of industrial colours is produced using special PSX® colour tinters for different PSX® 700 bases.

The solvent free colour tinters of PSX® 700 are formulated on the same binder technology. The unique product properties of PSX® 700 are therefore not reduced by organic acrylate binders which are commonly used in universal tint systems. This unique tinting system also avoids variation in properties with varying tinter volumes from different colours.

To ensure colour continuity, it is recommended that repairs or application on overlapping surfaces are carried out using one tint batch. Also different application techniques may influence product colour and appearance. When there is a longer time between initial application and repair, it is recommended to extend repairs to edges or welds thereby coating full areas which will minimize visibility of possible colour variations between batches.

2. MIXING

PSX® 700 Epoxy Siloxane is a two component product. The curing and crosslinking is a balanced process of hydrolyzation and reaction between the base component and hardener. The mixing ratio between base component and hardener is 4 to 1 by volume. This ratio is of high importance and care must be taken that accuracy in mixing is ensured. It is recommended that only full units are mixed. The use of split units must be reduced to the absolute minimum and an accurate mixing ratio must be adhered to. Inaccurate mixing may result in reduced performance of the product.

The high difference in viscosity between base and hardener needs to be taken into account when using plural component spray equipment. Plural component spray equipment must be equipped with a volume metering system and ensure that no back-flow of the low viscosity hardener or reduced volume supply of the high viscous base can occur.

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3. THINNERS

PSX® 700 is supplied as a solvent free product with the related application advantage of having no volatile content. Thinning is not required under most circumstances.

However, contrary to typical solvent free products PSX® 700 can be thinned to accommodate the product to particular application conditions, if required. It is important that after thinning PSX® 700, the flashpoint of the thinner used is taken into account during application.

It is essential that thinning of PSX® 700 is always done with the recommended thinners. Unsuitable thinners could be incompatible with PSX® 700 leading to undesired effects in the coating or applied film. These effects can influence proper mixing of components, curing, flow and colour. Thinners to be used are PPG Thinner 60-12 (Amercoat® 911) or Thinner 21-06 (Amercoat® 65). When used above 32°C (90°F) the Thinner 21-25 (Amercoat® 101) is recommended.

The recommended equipment cleaner is PPG Thinner 90-58 (Amercoat® 12).

4. OVERCOATING OF INORGANIC ZINC PRIMERS

A mist coat / full coat application technique is required when applying over inorganic zinc primers to prevent bubbling of the coating during or after application. Thin PSX® 700 up to 15% with PPG Thinner 60-12 (Amercoat® 911) to apply this mist coat. When used on substrates with temperatures above 32°C (90°F) use Thinner 21-25 (Amercoat® 101). Ensure dry spray is removed from the surface.

See also Information sheet 1706 for further recommendations on overcoating zinc based primers.

5. STRIPE COATING

When PSX® 700 is used as a top coat in a two coats system, it is important that the system thickness is accurate on all critical areas like edges, corners, welding seams and difficult to reach locations. It is necessary to apply a stripe coat using the primer coat on all these areas before application of PSX® 700.

It is recommended to use a recoatable epoxy primer or build coat in a contrasting shade for this. Check with your PPG Protective & Marine Coatings representative for a selection of options. We do not recommend using PSX® 700 for stripe coating.

6. FILM THICKNESS

The inorganic nature and hydrolyzation process that occurs during the cure of PSX® 700 results in a volume solids reduction of the material. Although solvent free, as supplied, it results in the final retained solids content of 90 % by volume as is indicated on the Product Datasheet. It is for this reason that the application at a wet film thickness over 275 microns (11 mils) that will result in a dry film thickness over 250 microns (10 mils) is not acceptable.

PSX® 700® should always be applied in recommended dry film thicknesses range between 75 and 175 microns (3-7 mils) measured as described in ISO 12944 Part 5 with a maximum dft. of 250 microns (10 mils). Exceeding this maximum with a second repair coat is only acceptable when this first layer is cured over 30 days after application of the first layer.

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7. RECOATING

When recoating freshly applied PSX® 700 in order to increase low thickness areas or to repair damaged coating, the first freshly cured coat of PSX® 700 may reject the second coat. This is usually shown immediately by a cissing or crawling back effect of the new coat of wet applied material. If this occurs, the area to be repaired must first be solvent wiped with Thinner 21-06 (Amercoat® 65). This will remove the effect and make the surface recoatable again.

This above effect can be exhibited on areas of overlap of a single coat application if overlap is not applied wet on wet. For example if a beam is sprayed and then turned and there is a time delay in continuation of the coat application.

After aging and weathering exposure for longer periods the solvent cleaning before recoating is no longer required.

8. FORCE CURING

When PSX® 700 is cured with force curing equipment care must be taken that after application a short induction time of at least 10 minutes at ambient conditions is used before exposure to hot air. This short pre-reaction time will prevent boiling-off from the low viscous hardener that could cause the mixing ratio to go off balance. It will also prevent breaking-up of the thixotropic agent in the formulation that could otherwise cause sagging or film forming disturbances of the wet film.

Force curing should be limited to 90°C (195°F) to avoid any effects on the product performance or colour accuracy.

9. OVERCOATING AGED COATING SYSTEMS

When PSX® 700 is specified as a maintenance overcoat system, the existing system should be verified to be sound. In particular, the following criteria should be satisfied prior to specification of PSX® 700 or primer / PSX® 700 systems for over coating:

- Systems should be based on zinc primer, epoxy, polyurethane, or polysiloxane (not alkyd or acrylic)
- The total dry film thickness should be less than 500 microns (20 mils) with spot readings not to exceed 750 microns (30 mils).
- The topcoat should have solvent resistance to pass 25 MEK double rubs when tested in accordance with ASTM D 5402.
- The adhesion of the system should be at least 3.5 MPa (500 psi) and / or a 4A (per ASTM D 3359).
- Standard surface cleaning and preparation steps should be accomplished as per PPG's recommendations.

If any of these conditions are not verifiable, it is recommended to conduct a test patch to confirm performance and obtain approval from PPG PMC technical services.

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