IPAS 28

650 Range – High Temperature Marking Paints and Touch Up Coatings: Water Based Inorganic

1. **Scope**

1.1. This document covers the application and curing of the 650 Range of water based inorganic high temperature marking paints to several user specifications including MSRR 9041. These materials are primarily designed for use as a marking paint or coating on high temperature steels used in the manufacture of aero engines, although other applications may be applicable subject to end user approval.

1.2. This procedure covers clear primer and all coloured versions including:

IP9091 Clear Primer 66	PL153 Grey
PL149 White	PL155-R1 Orange
PL150-R1 Green	PL167-R1 Red
PL151-R1 Blue	PL168-R1 Yellow
PL152-R1 Black	

Additional products covered: PL270 Sermaseal Touch Up

1.3. Please read this document in conjunction with any specifier drawings or application information sheets.

2. **Substrate Preparation**

2.1. All substrates must be thoroughly clean, grease and dust free prior to painting

As an inorganic coating, surface preparation is very important, as any surface contaminants will result in poor surface wetting and adhesion failures and / or flaking.

2.2. The coatings can be applied to 120/ 220 grit blasted steels, 120-180 grit abrasive paper abraded, cleaned and degreased surfaces. These coatings can be applied over bare metal or sacrificial aluminium coated (Ipcote IP9183-R1) surfaces. When applied on titanium alloy parts, a maximum dwell time of 30 minutes after surface preparation is only allowed.

3. **Coating Preparation**

3.1. Ensure that the material is thoroughly mixed prior to use. The coating could settle on standing due to the technical composition of the material. Thorough mixing that is designed to lift any settled material

from the base of the container is essential prior to coating application. Typically the coating can be mixed by running on rollers for 2-3 hours. Ensure coating is fully dispersed before application.

3.2. The coatings are designed for application at supply viscosity, but at the discretion of the user, can be thinned with a maximum addition of 5% by volume '650 range spray aid' to assist application and surface wetting. In this case, active pot life 8 hours.

Viscosity measurement prior to application may be performed at the discretion of the end user.

4. **Application and Drying, Stoving / Baking**

4.1. The coating is designed for spray application using conventional or HVLP air atomising spray guns. It is recommended that latest generation 'Fine Finish Compliant' spray guns are used (such as DeVilbiss Sri HD Transtech Gravity or SATA minijet 3000 BHVLP) to provide the best finish with minimal orange peel.

Application of too heavy films will give rise to poor surface wetting, and can lead to failures in adhesion, blistering etc. on stoving

Small areas for marking can be applied by brush. Other methods may be employed subject to end user evaluation and approval for specific components.

4.2. Parts shall be sprayed with thin, soft but wet coats, applying 3-4 passes allowing an approximately 30 second dwell between each pass.

4.3. The range can be allowed to cold cure (air dry); however it is recommended that the coating is 'fixed' by baking as detailed below:

4.3.1. **Air Drying:** The product will dry in 15-30 minutes at typical ambient temperatures. However, when just air dried, the finish is moisture sensitive and will 're-wet' in conditions of high humidity.

4.3.2**. Baking / Stoving:** **Primer – IP9091, Primer 66,** Allow the applied coating to flash off for 15 minutes. Stove for 30 minutes@ 80-90^{0}C. This cure cycle sets the Primer coating sufficiently to allow mild handling, masking alterations and then application of subsequent coating layers.

4.3.2. **Baking / Stoving:** Allow the applied coating to flash off for 15 minutes. Stove for 30 minutes@ 150^{0}C metal temperature minimum. For full cure, after this cure, raise oven temperature to 400^{0}C, and cure for a further 30 minutes metal temperature

4.4. **Note:** Only stoved coatings exhibit some degree of water resistance, and only those operating above 400^{0}C become totally resistant. If coated components are to be stored for any length of time then it is recommended that the full 400^{0}C cure be given and / or a suitable desiccant is used in the packaging.

5. **Coating Thickness**

5.1. The recommended dry coating thickness is 12-20 microns.