BOMBARDIER
Toronto (de Havilland)
PROPRIETARY INFORMATION

PPS 34.23

PRODUCTION PROCESS STANDARD

Application of DSC 595 Adhesion Promoter

Issue 4
- This standard supersedes PPS 34.23, Issue 3.
- Vertical lines in the left hand margin indicate technical changes over the previous issue.
- Direct PPS related questions to PPS.Group@aero.bombardier.com or (416) 375-4365.
- This PPS is effective as of the distribution date.

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1 Scope

1.1 This Production Process Standard (PPS) specifies the procedure and requirements for application of DSC 595 adhesion promoter to bare titanium surfaces.

1.1.1 This PPS complements the engineering drawings that specify its use as an authorized instruction and the procedure specified must be followed to ensure compliance with all applicable specifications. In general, if this PPS conflicts with the engineering drawing, follow the engineering drawing. The requirements specified in this PPS are necessary to fulfil the engineering design and reliability objectives.

1.1.2 Refer to PPS 13.26 for the subcontractor provisions applicable to this PPS.

1.1.3 Procedure or requirements specified in a Bombardier BAPS, MPS, LES or P. Spec. **do not** supersede the procedure or requirements specified in this PPS.

2 Hazardous Materials

2.1 Before receipt at Bombardier Toronto (de Havilland), all materials must be approved and assigned Material Safety Data Sheet (MSDS) numbers by the Bombardier Toronto (de Havilland) Environment, Health and Safety Department. Refer to the manufacturer's MSDS for specific safety data on any of the materials specified in this PPS. If the MSDS is not available, contact the Bombardier Toronto (de Havilland) Environment, Health and Safety Department.

3 References

3.1 General

3.1.1 Unless a specific issue is indicated, the issue of the reference documents specified in this section in effect at the time of manufacture shall form a part of this specification to the extent indicated herein.

3.2 Bombardier Toronto (de Havilland) Specifications

3.2.1 PPS 13.26 - General Subcontractor Provisions.

3.2.2 PPS 13.13 - Personal Protective Respiratory Equipment.

3.2.3 PPS 13.28 - Storage Life of Adhesives, Sealants, Paints and Composite Products.

3.2.4 PPS 31.09 - Cleaning of Titanium and Titanium Alloys.

3.2.5 PPS 31.17 - Solvent Usage.

3.2.6 PPS 34.08 - Application of Epoxy-Polyamide Primer (F19 & F45).

3.2.7 PPS 34.11 - Priming and Painting of DASH 8 Aircraft Exterior Surfaces.

3.3 Bombardier Aerospace Specifications

3.3.1 BAERD GEN-007 - Quality Control of Heat Treating Equipment and Hot Forming Equipment.

3.3.2 BAERD GEN-023 - Contamination Control for Compressed Air.

3.3.3 BAPS 138-055 - Accelerated Curing of Organic Compounds.

4 Materials and Equipment

4.1 Materials

4.1.1 Unless otherwise specified in this section, use only the materials specified; use of superseding or alternative materials is not allowed.

4.1.2 DSC 595 adhesion promoter as listed in Table I. Use only “point of use packaging” utilizing components pre-measured by weight and packaged together.

4.1.3 Masking tape utilizing rubber based adhesive (e.g., 3M #218 or 3M #8428) for masking off areas which are not to be primed (e.g., electrical bond contact areas).

4.1.4 Compressed air for use with spray guns. Compressed air used with spray application equipment must meet the requirements of BAERD GEN-023.

4.2 Equipment

4.2.1 All equipment used to mix DSC 595 adhesion promoter must be thoroughly clean, dedicated and constructed of 316 stainless steel.

4.2.2 Lint free wiping cloths (e.g., DSC 378-2).

4.2.3 Cotton gloves (e.g., DSC 422-1).

4.2.4 Spray gun and associated hardware, for example: DeVilbiss spray gun models VTX-18 or VTX-30, Air Cap Part No. 2000, Set Reference No.4, Air Cap GTI -407- 2000, Fluid Nozzle Assembly: VTX-2, Orifice size: 0.018, Recommend flow: 15 oz/minute or less.

Spray guns and associated equipment must be capable of applying coatings as specified herein without unacceptable defects as specified in section 6. Operate spray guns and associated equipment according to the equipment manufacturers instructions.

4.2.5 Cure oven or area (conventional or infrared (IR)), used for accelerated curing, qualified according to BAPS 138-055 (including temperature uniformity survey according to BAERD GEN-007).

5 Procedure

5.1 General

5.1.1 DSC 595 adhesion promoter is intended to be applied to bare titanium surfaces as an alternative to chemical conversion coating as allowed by PPS 34.08 or PPS 34.11 and when specified by the engineering drawing.

5.1.2 Do not apply DSC 595 adhesion promoter to parts or assemblies if the temperature is less than 60°F (16°C) or the relative humidity is greater than 80% in the primer application area. Use calibrated indicators to monitor and record temperature and humidity conditions.

5.1.3 Wash all equipment (e.g., cranes, baskets, frames, filters, etc.) frequently to avoid build-up of dust and loose overspray.

5.2 Preparation of DSC 595 Adhesion Promoter

5.2.1 Prepare DSC 595 adhesion promoter according to the manufacturers instructions or as follows:

Step 1. Add Part B to Part A to make up a mixed solution. Ensure to add the entire contents of Part B to the entire contents of Part A to ensure the correct mixing ratio. One quart of mixed solution should cover approximately 200 sq. ft. for mist spray application.

Step 2. Thoroughly mix the two parts together for a minimum of 60 seconds to ensure an air free homogeneous mixture.

Step 3. Allow the mixture to sit for an induction time of 30 - 40 minutes.

Step 4. Mix again after induction. The mixed solution must be homogenous both before and after induction. Refer to Table I for the mixed solution appearance and pot life.

Table I - Appearance and Pot Life of Mixed DSC 595 Adhesion Promoter

DSC 595	MANUFACTURER	PART NUMBER	APPEARANCE	POT LIFE
DSC595-1	Henkel Technologies	Alodine 8800 SG	clear or translucent	10 hours
DSC595-2	3M Company	AC-131 BB	slightly cloudy and blue tinted	24 hours
DSC595-3	PRC Desoto International Inc. PPG Aerospace	EAP-12	slightly cloudy and blue tinted	24 hours

5.3 Preparation of Parts

5.3.1 Clean un-coated titanium surfaces to which DSC 595 adhesion promoter is to be applied as follows:.

Step 1. Mechanically clean using a Scotch-Brite pad.

Step 2. Dust off the cleaned area with a clean cloth (ref. para. 4.2.2).

Step 3. Chemically clean according to PPS 31.09.

Step 4. Check to ensure that the cleaned surface will remain water break free for a minimum of 30 seconds.

5.3.2 If DSC 595 adhesion promoter will be applied immediately following surface preparation or surfaces have been suitably protected against contamination, additional cleaning is not required. If a part has become contaminated with grease or oil, reprocess it as specified in para. 5.3.1 before application of DSC 595 adhesion promoter.

5.3.3 Always wear clean, white cotton gloves while handling cleaned parts to prevent contamination.

5.3.4 As necessary, mask off (ref. para. 4.1.3) areas and/or parts in proximity to the coating area which are not to be coated with DSC 595 adhesion promoter.

5.4 Application of DSC 595 Adhesion Promoter

5.4.1 Apply a thin continuous film of DSC 595 adhesion promoter by either spray mist, clean lint free cloth or natural bristle brush across the prepared surface. Start from the top and migrate to the bottom, minimizing overlap. Do not allow solution to pool or run. Blot excess solution with a clean pre-dampened lint free wiping cloth (ref. para. 4.2.2) without rinsing or disturbing the coating. Solution breaks (de-wetting) must not be observed; a void in the wet film indicates inadequate cleaning.

5.5 Curing of DSC 595 Adhesion Promoter

5.5.1 Allow the coating to air dry at 75°F (24°C) minimum for a minimum of 60 minutes. Alternatively, the coating can be force cured with warm air at 120° - 130°F (49 - 54°C) Ovens or areas (conventional or infrared (IR)) used for accelerated curing must be qualified according to BAPS 138-055 (including temperature uniformity survey according to BAERD GEN-007).

5.6 Clean-Up

5.6.1 Solvent clean all mixing and application equipment thoroughly according to PPS 31.17.

6 Requirements

6.1 Solution breaks (de-wetting) must not be observed; a void in the wet film indicates inadequate cleaning.

6.2 Cured DSC 595 adhesion promoter coatings must be continuous over the entire coated area and be free of damage (such as scratches), defects (such as blemishes, runs, etc.) and other irregularities that could impair appearance or adhesion promoting properties of the coating.

7 Safety Precautions

7.1 The safety precautions specified herein are specific to Bombardier Toronto to meet Canadian Federal and Provincial government environmental, health and safety regulations. It is recommended that other facilities consider these safety precautions; however, suppliers, subcontractors and partners are responsible for ensuring that their own environmental, health and safety precautions satisfy the appropriate local government regulations.

7.2 Observe general shop safety precautions when performing the procedure specified herein.

7.3 Do not eat or drink in DSC 595 adhesion promoter coating spraying areas.

7.4 Wear personal protective respiratory equipment according to PPS 13.13 when applying DSC 595 adhesion promoter coating.

7.5 Keep all DSC 595 adhesion promoter coating component containers closed when not in use.

7.6 Ensure the spray booths and rooms are equipped with suitable exhaust systems. Spray rooms must be equipped with forced or induced ventilation systems capable of maintaining sufficient ventilation to meet Occupational Health and Safety Act requirements.

7.7 Do not have open flames or unprotected lights in areas where coating operations are carried out. Do not use infra-red or other heat lamps in coating booths (i.e., any area where DSC 595 adhesion promoter coating is being applied).

7.8 Avoid skin contact with mixed DSC 595 adhesion promoter coating or components. If skin contact occurs, wash the affected area thoroughly with soap and water.

7.9 Avoid eye contact with DSC 595 adhesion promoter coating or components. If contact occurs, flush the eyes immediately with large quantities of water at an eye wash station and report to the Health Centre.

7.10 Observe general shop safety precautions when performing the procedure specified herein.

7.11 Refer to PPS 31.17 for the safety precautions for solvent cleaning.

8 Personnel Requirements

8.1 Personnel responsible for application of DSC 595 adhesion promoter must have a good working knowledge of the applicable procedure and requirements as specified herein and must have exhibited their competency to their supervisor.