PPG Aerospace
PRC-DeSoto

Desoprime™ HS Primers

CA 7501
Application Guide

Where Smart Solutions Take Flight®

Use

Desoprime™ HS CA 7501 primer is a two-component, non-chromated epoxy primer designed for exterior applications on aircraft. It can be used on fiberglass, composite, and aluminum surfaces. CA 7501 is urethane compatible. It provides excellent durability, adhesion, water and fluid resistance, as well as corrosion resistance. It also passes the whirling arm (rain erosion) test.

Surface Preparation

Surface preparation is extremely important for good adhesion, chemical resistance, corrosion resistance, and appearance. Customer preferences for pre-paint preparation and materials will vary. The following procedures are PPG Aerospace, PRC-DeSoto recommendations for non-anodized surfaces.

Aluminum Substrates

1. Strip the aluminum surfaces with a stripper per the manufacturer's instructions.

2. Rinse with warm water.

3. Apply an alkaline cleaner and rinse thoroughly with warm water. Take care not to let the alkaline cleaner dry on the surface. Dried alkaline cleaner leaves a residue that is difficult to see or remove.

4. Power abrade the surface with abrasive pads and water. Clean thoroughly with a mild solvent, or solvent blend, such as Desoclean™ 110 cleaner.

5. Acid etch with a mild acid brightener or dilute a strong brightener as per the manufacturer's instructions. Agitate the brightener with abrasive pads. Do not power abrade. Make sure the surface is water break free for a minimum of 20 seconds. If not water break free, hand abrade with diluted brightener, then recheck the surface for water breaks.

6. Apply golden chromate conversion coating according to manufacturer's instructions using care not to exceed recommended surface dwell time. Rinse thoroughly with warm water.

7. Allow the surface to dry before applying the primer, making sure there is no residual water in the seams.

Note: Some aircraft have anodized skins. After the aircraft is stripped down to the anodized aluminum, power abrade the surface with an abrasive pad, wipe clean with Desoclean™ 110 cleaner, then apply a golden chromate conversion coating. Rinse with warm water and allow the surface to dry before applying Desoprime™ HS CA 7501 epoxy primer.

Fiberglass / Composite Surfaces

Abrade the composite / fiberglass surface with 240-grit sandpaper. Remove any dust or debris with a mild solvent, or solvent blend, such as Desoclean™ 110 cleaner. Ensure the surface is clean prior to applying CA 7501.

Sand And Repaint

1. Prior to sanding, inspect the substrate to ensure the aged paint system is in sound condition. Areas of bubbles, blisters, etc. should be inspected to ensure substrate is free of corrosion.

2. If sanding is warranted, carefully sand* the polyurethane painted surface to remove the gloss, minimizing the amount of exposed aluminum. For the smoothest surface, sand with 400-grit paper.

3. Wipe the sanded surface clean with a mild solvent, or solvent blend, such as Desoclean™ 110 cleaner. Do not use a strong solvent such as Methyl Ethyl Ketone (MEK). Dust and debris may also be removed with a urethane compatible tack rag.

4. Where metal is showing, apply a thin coat of CA 7501 chrome-free high solids epoxy primer with a Sempen® applicator or touch up gun.

5. Allow the primer to dry then apply two coats of recommended Desothane® HS topcoat.

***Note:** Some carbide sandpapers may contain silicone or stearate binders that will cause dewetting or crawling problems

Mixing The Primer

Note: It is important to condition the paint for 24 hours prior to mixing by placing it in the shop or hangar, with ambient temperatures between 55° to 95°F (13° to 35°C). The minimum temperature of the paint components should be 55°F (13°C) prior to mixing.

Be sure all mixing and measuring containers are clean and free of contamination. Paper mixing cups must not have a solvent soluble (i.e. wax) lining. This lining will contaminate the primer.

For all CA 7501 primers, it is important to shake the base component for 10 to 15 minutes on a paint shaker or stir thoroughly until there is no solid material on the bottom of the can. Always add components in the order shown on label. All components should be mixed at the proper ratio (outlined below) to achieve the optimum properties and the correct VOC. Failure to mix properly will affect the application characteristics and film properties. Avoid mixing old primer with freshly mixed primer. This can reduce the pot life of the freshly mixed primer and cause severe orange peel and decrease the wet edge times. Do not use thinners or flow control agents from other manufacturers. These often contain material that will degrade the cure, adhesion, or appearance of the primer.

Mix Ratio: 1:1 (by volume)
Base: CA 7501A
Activator: CA 7501B

Mixing Instructions

Be sure the activator component is well stirred by hand using a clean stirrer or paint stick at least 5 minutes prior to adding to the base. The activator component must be homogeneous prior to incorporation into the base. After thoroughly shaking the base component, add one volume of activator component to the base component. Mix until uniform.

Induction Time

An induction time is required for the mixed CA 7501 primer. The induction time is based on the ambient (external) temperatures as outlined in Table 1 below. Mild agitation during induction period is highly recommended.

Table 1

External Temperature	Induction Time
55° – 64°F (13° – 17°C)	1½ hours, minimum
65° – 74°F (18° – 23°C)	1 hour, minimum
75° – 84°F (24° – 28°C)	30 minutes, minimum
85° – 95°F (29° – 35°C)	No induction time required

Pot Life

The pot life for CA 7501 is 6 hours between 55 – 95°F (13° – 35°C). After mixing, strain mixed primer through a fine mesh cloth to remove any particles that may have been introduced into the primer during mixing and measuring. Stir the mixed material before and during use to minimize settling. Discard any unused material that has exceeded it usable pot life. A primer that has exceeded its usable pot life may still have low viscosity, but may develop severe orange peel.

Application

Ground the aircraft and the application equipment before priming. Stir the primer slowly while the primer is being applied. Apply CA 7501 to an average dry film thickness of 0.6 to 1.2 mils (15 to 30 microns). This can be accomplished by one application of one medium coat with a 50% overlap. After applying primer, a close inspection of the primer film is recommended to ensure a continuous coating was applied. If there are small pinholes in the dried primer, reapply the primer to completely cover the substrate.

Application Conditions

The temperature of paint should be equivalent to the external / environmental conditions (shop or hangar) before application.

The optimum conditions for applying Desoprime™ HS primers is from 60° to 80°F (15° to 27°C) and 15% to 85% relative humidity. Lower temperatures may have longer dry times and increased time to put the aircraft into service. Higher temperatures will shorten pot life, increase orange peel and shorten wet edge.

Accelerated Cure

Allow 30-minute flash off from 65° to 75°F (18° to 29°C), followed by 30 minutes at 120°F (49°C) for dry-to-topcoat.

Surface Preparation Before Topcoating

If the primer surface exhibits defects such as dry spray or visible dust particles, hand scuff with abrasive pads and remove dust with a mild solvent, or solvent blend, such as Desoclean™ 110 cleaner. A urethane compatible tack rag may be used to remove dust on the surface. Do not use excessive pressure when using a urethane compatible tack rag. Tack rag residue can be left on the primer surface and cause craters or swirl marks. Never use a tack rag wet with solvent.

If the primer is less than 24 hours old, the topcoat can be applied without any further surface preparation. Ensure the surface is clean prior to applying any topcoat. For optimum intercoat adhesion, it is recommended to topcoat 2 – 3 hours after applying CA 7501 primer.

Spray Equipment

PPG Aerospace, PRC-DeSoto primers are formulated for use with all types of spray equipment. Recommended tip sizes and pressure settings are outlined in Table 3 on the next page. The final appearance depends on many factors. In general, small particles will create a smoother film with less orange peel. Air spray or HVLP atomize the paint more effectively than airless or assisted airless spray equipment and are recommended for Desoprime™ HS primers.

Fluid Flow Rate

To determine fluid flow rate of spray equipment, turn off the atomizing air at the pump. Enclose the air cap of the spray gun with a solvent resistant plastic bag. If more than one gun is being used from one pump, then both triggers must be pulled to draw pressure from the pump. Pull the trigger on the enclosed gun for 15 seconds. Remove the bag and transfer all the captured paint into a graduated container. Multiply the contents by 4 and this will be the flow rate per minute. The suggested flow rate to minimize sagging and orange peel is 8 to 12 ounces (227 to 340 milliliters) per minute. The flow rate can be adjusted by increasing or decreasing the fluid pressure or by changing the tip size.

Dry Times For CA 7501*

Table 2

Dry times	55°–64°F (13°–17°C)	65°–74°F (18°–23°C)	75°–84°F (24°–28°C)	85°–90°F (29°–32°C)	91°–95°F (33°–35°C)
Dust free	3 – 4 hours	2 – 3 hours	½ – 1½ hours	½ – 1½ hours	½ – 1½ hours
Dry-to-tape	4 – 5 hours	3 – 4 hours	2 – 3 hours	2 – 3 hours	1½ – 2½ hours
Dry-to-topcoat Minimum Maximum	 2 hours 24 hours	 2 hours 24 hours	 2 hours 24 hours	 2 hours 24 hours	 2 hours 24 hours
Dry-to-fly	96 hours	72 hours	48 hours	24 hours	20 hours
Ultimate cure	7 days	7 days	7 days	7 days	7 days

*Actual dry times may vary and are dependent upon film thickness, airflow, and spray technique. Lower film thickness, better airflow, and spraying "dry" will decrease the dry-to-tape times.

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Spray Equipment: Recommended Tip Sizes and Pressure Settings

Table 3

Equipment Type	Tip Size	Pot Pressure	Atomization Pressure at the Cap
Electrostatic Air Spray Gun	1.2 mm or 1.5 mm (or equivalent)	16 to 20 psi (1.1 to 1.4 bar)	45 to 60 psi (3.1 to 4.1 bar)
Electrostatic Air Assisted Airless Spray Gun	#611 or #613 (Graco® Nomenclature)	700 to 1800 psi (48 to 124 bar)	40 to 50 psi (2.8 to 3.5 bar)
High Volume Low Pressure Spray Gun (HVLP)	1.0 to 1.4 mm (or equivalent)	10 to 20 psi (0.69 to 1.4 bar)	10 psi maximum (0.69 bar)*
Conventional Air Spray Gun	1.2 to 1.8 mm (or equivalent)	10 to 20 psi (0.69 to 1.4 bar)	45 to 60 psi (3.1 to 4.1 bar)*

Note: 1 psi = 0.0689 bar

*Spraying in excess of 10 psi at the air cap will cause "dry spray" with HVLP spray equipment.

Air Pressure Settings

In order to achieve 45 to 60 psi (3.1 to 4.1 bar) atomization pressure at the gun, the regulated pressure at the mixing pot should be set higher to compensate for pressure losses. Table 4 below shows regulator pressure requirements for different hose lengths.

Clean Up

Clean spray equipment as soon as possible after use. Flush spray equipment with a strong ester or ketone solvent, or solvent blend, such as Desoclean™ 45 cleaner. PPG Aerospace, PRC-DeSoto epoxy primers are chemically reacting systems that are not soluble in solvents after they have cured. For this reason, equipment should be cleaned as soon as possible after application and always before the material has cured. Even freshly applied coatings will deposit a film on the equipment that does not dissolve easily. Agitation with a brush or clean cloth will help to remove these deposits.

Table 4

Air Hose Length	Air Regulator Pressure
4 feet (1.2 meters)	45 psi (3.1 bar)
15 feet (4.6 meters)	50 psi (3.4 bar)
25 feet (7.6 meters)	55 psi (3.8 bar)
36 feet (11.0 meters)	65 psi (4.5 bar)
50 feet (15.2 meters)	70 psi (4.8 bar)
75 feet (22.9 meters)	85 psi (5.9 bar)
100 feet (30.5 meters)	100 psi (6.9 bar)

Health And Safety

This product is safe to use and apply when recommended precautions are followed. Before using this product, read and understand the PPG Aerospace, PRC-DeSoto "Safe Handling Guide" for aerospace coatings and the Material Safety Data Sheet (MSDS) for information on health, physical and environmental hazards, handling precautions and first aid recommendations. An MSDS is available on request. Avoid overexposure. All mixing and spraying must be conducted with adequate ventilation and proper personal protective equipment as recommended. Obtain medical care in case of symptoms of overexposure as outlined in Section III of the Material Safety Data Sheet (MSDS).

FOR INDUSTRIAL USE ONLY. KEEP AWAY FROM CHILDREN.

EMERGENCY MEDICAL INFORMATION IN THE U.S.A. AND CANADA: 1-800-228-5635.
EMERGENCY MEDICAL INFORMATION (GLOBAL): 1-651-632-9265.
EMERGENCY SPILL CONTROL IN THE U.S.A.: 1-800-424-9300 (CHEMTREC).
EMERGENCY SPILL CONTROL INFORMATION IN CANADA: 1-613-996-6666 (CANUTEC).

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