HSP-7401
Wind Turbine Blade Polyurethane Primer

HSP-7401 series is a polyurethane primer which offers the adhesion to composite substrate, flexibility and profile filling properties required in wind turbine blade finishing operations.

Additionally, HSP-7401 may be top coated in a little as 30 minutes, which reduces cycle time and speeds throughput. The product is designed for spray or roll application, and is compatible with a wide array of application equipment, including robotic. Its flow and leveling properties work together with PPG's proprietary topcoat technology to produce an ultra-smooth surface which enhances turbine energy output.

HSP-7401 has been thoroughly tested as a system with PPG's AUE-50000 series erosion resistant polyurethane topcoat, producing outstanding results at reduced overall film thickness. System test results are listed on both the AUE-5000 series data sheet (Part # - WINDPB2 – 6/09) and page two of this data sheet

Features

- Excellent adhesion to composite substrate
- Ultra-smooth surface profile
- Fast dry to topcoat
- VOC compliant to 420g/l

Benefits

- Robust protection
- Enhanced energy output
- Shorter cycle times
- Reduced volatile emissions

Required Products

- HSP-7401 (A Component)
- AUE-3550 Curing Agent (B Component)

Physical Properties (typical)	Method/Measure	Result
VOC	EPA Method 24	<420 g/l
HAP level	Lb. /gal. solid coating	0.16
Gloss	60° meter	30 +/- 10 GU
Application Viscosity	#3 Zahn	18-22 seconds
Pot life @ 24ºC		2-2.5 hours
Dry film density	@ 1.0 mils dry film	0.0084 lbs/sq. ft
Mixed Volume solids		51% +/- 3%
Mixed Weight solids		62% +/- 4%
Mix Ratio	Pigmented package to B cure	4:1 (by volume)
Recommended dry film		2.0 - 2.5 mils
Theoretical coverage @ 100% T.E.	@ 1.0 mils dry film	822 ft²
Dry times @ 24ºC	To touch	1 hour
	To handle	5 hours
	To Topcoat	1 hour, Minimum
Service temperature		-40°C to 150°C
Shelf life	From date of manufacture	12 months
Color		Beige

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Surface Preparation

Composite Substrates

1. Blow off surface with compressed air.
2. Clean the composite surface with PPG DX330 Wax & Grease Remover oranother mild solvent cleaner to remove any dirt or mold release agent.

Mixing

Before mixing the primer, the material should be allowed to reach room temperature. Shake the base component or stir thoroughly.

Add 1 part AUE-3550 B curing agent to 4 parts of HSP-7401 Part A primer while agitating. Mix the material until it is homogenous.

Spray Equipment

HSP-7401 primer can be applied by air, airless or HVLP spray equipment.

Air Spray

Tip size:	1.2 to 1.8 mm
Air pressure:	45 to 60 psi (3-4 bar)
Pot pressure:	10 to 20 psi (0.7- 1.4 bar)

High Volume Low Pressure (HVLP)

Tip size:	1.0 to 1.4 mm
Air pressure:	10 psi maximum (0.7 bar)
Pot pressure:	10 to 20 psi (0.7 – 1.4 bar)

Airless Spray

Tip size:	.011 to .013 in.
Fluid pressure:	700 to 1000 psi (48-69 bar)

Application

Apply:	1 uniform, wet coat
Flash:	30 minutes, minimum, before top coating
Dry film thickness	2.0 mils (50 microns) per coat (primer)
Total dry film build	2.5 mils (62 microns) maximum

Clean Up

Clean spray guns, gun cups, storage pots, etc., thoroughly with lacquer thinner or urethane grade reducer.

Health and Safety

See Material Safety Data Sheet and Labels for additional safety information and handling instructions.

EMERGENCY MEDICAL OR SPILL CONTROL INFORMATION (412) 434-4515; IN CANADA (514) 645-1320

Materials described are designed for application by professional, trained personnel using proper equipment and are not intended for sale to the public. Products mentioned may be hazardous and should only be used according to directions, while observing precautions and warning statements listed on label. Statements and methods described are based upon the best information and practices known to PPG Industries. Procedures for applications mentioned are suggestions only and are not to be construed as representations or warranties as to performance, results, or fitness for any intended use, nor does PPG Industries warrant freedom from patent infringement in the use of any formula or process set forth herein.

Technical Data – HSP-7401/AUE-50000 System

Test	Test Method	PPG Minimum Specification	HSP-7401 AUE-50000 Series
Color		No lead, chrome	Available
Film Build (per coat)			2.0 Mils (topcoat)
60° Gloss	ASTM D523	40 max	30 +/- 10
Appearance	Visual Inspection	Good	Excellent
% Adhesion	ASTM D3359 Method A	100%	100%
Pull-Off Strength	ASTM D4541	4 MPa	5 MPa
Hum Adhesion	ASTM D4585	96 Hr.	340 Hr. - No Defects
QUV A Gloss Ret. Color change	ASTM G154 (500 hrs.)	70% 1.0 max.	80% <1.0
QUV B Gloss Ret. Color change	ASTM D4587 (1000 hrs.)	40% 1.0 max.	60% <1.0
Filling properties	Visual Inspection	NR	Very Good (primer)
^Cylindrical Mandrel bend @ room temp.	ASTM D522 Method B .5 inch	Pass, no cracking	Pass
^Cylindrical Mandrel bend -40C	ASTM D522 Method B 2.5 inch	Pass, no cracking	Pass
Falling sand #L to fail	ASTM D 968-93	40L	100 + L
Taber Abrasion (2000 cycles)	#D4060 g of coating loss	0.17g	<0.15g
Impact Resistance (CRS)	ASTM D2794		100 in/lbs.
*Rain Erosion (Whirling Arm)	BMS 10-72V	30’	240’
VOC	EPA Method 24	3.5	3.5 lb./gal primer (420 g/l) 3.5 lb./gal topcoat (420 g/l)

Test Notes:
CS-10 wheel and 1000g wt.
* PPG internal test with proprietary equipment. Full test method available upon request
^ Mandrel bend performed over CRS, all others over epoxy composite.

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