58 Series
Polyurethane Topcoat

Technical Data Sheet

Product Group

Polyurethane topcoat

Characteristics

Product Information

- This two component high solids polyurethane finish is formulated for application to military aircraft, and is designed to provide maximum protection from various chemicals, hydraulic fluids, aviation fuels, and corrosion causing media.
- Available in gloss, semi-gloss, and camouflage appearance. Clear available in all gloss levels. Also available in aluminum metallic FS17178 and FS27178. This product line provides excellent performance with regard to cleanability, mar resistance and surface smoothness in all gloss ranges.
- This product 666-58-4095 is subject to International Traffic in Arms Regulations (ITAR).

Components

Curing Solution

Curing Solution X-501
Curing Solution X-503

Specifications

Qualified Product List

Boeing Long Beach	DPM 6330-1
Boeing St. Louis	MMS 420
Dowty Aerospace Prop	PS 632
Embraer	MEP 10-117, TY I
Italian Air Force	AER(EP)_M_P_001
Northrop Grumman	GP 110 AEF
UK Ministry of Defence	BS 2X 34
US Military	MIL-PRF-85285, Type I Class H
German Army (WIWEB)	TL8010-0046

For most recent up-date or missing specifications please check the qualified product list (QPL) on **www.akzonobel.com/aerospace**

AkzoNobel Aerospace Coatings
1 East Water Street, Waukegan, IL 60085, USA - Phone (847) 623 4200, Fax (847) 625 3200
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Surface Conditions

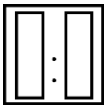
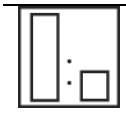
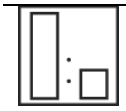
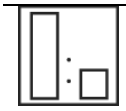
Cleaning

Surface pretreatment is an essential part of the painting process.
- Apply only over fresh or reactivated primed surfaces.

Recommended primers are as follows:

- High solids 10P20-12, 10P20-13, 10P20-14, Alumigrip 10P8-11, or 10P20-44MNF
- Conventional solids 37035A, 37076 or 37124
- Waterborne 10PW20-4
- Low Viscosity Aerodur 2100 MgRP

Instruction for Use

 Mixing Ratio (volume)	**Gloss** 1 part 1 part	Base 646-58 Curing Solution X-501
 Mixing Ratio (volume)	**Semi-gloss** 3 parts 1 part	Base 656-58 Curing Solution X-503
 Mixing Ratio (volume)	**Camouflage** 3 parts 1 part	Base 666-58 Curing Solution X-503
 Mixing Ratio (volume)	**Metallic, aluminum** 3 parts 1 part	Base 696-58 Curing Solution X-503
 Induction Time	30 minutes	

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Initial Spraying Viscosity (25ºC/77ºF)	15 – 30 seconds Ford #4 17 - 32 seconds Signature Zahn-Cup #2 25 – 75 seconds ISO Cup #4 The use of the #4 Ford Cup for viscosity is a requirement of MIL-PRF-85285. The Zahn Cup and ISO Cup measurements are provided only as a reference for field application. They are not provided as quality control values.
Note	Viscosity measurements are provided as guidelines only and are not to be used as quality control parameters. Certified information is provided by certification documentation available on request.
Pot life (25ºC/77ºF)	4 hours
Dry Film Thickness (DFT)	43 – 58 microns (µm) 1.7 – 2.3 mils

Application Recommendations

Conditions	Temperature: 15 – 35°C / 59 – 95°F Relative Humidity: 35 – 75%
Note	The quality of the application of all coatings will be influenced by the spray equipment chosen and the temperature, humidity, and air flow of the paint application area. When applying the product for the first time, it is recommended that test panels be prepared in order to identify the best equipment settings to be used in optimizing the performance and appearance of the coating.

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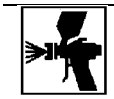
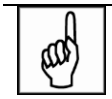
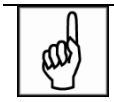
 Equipment	Air, conventional: 1.2-1.4 mm nozzle orifice Atomizing air 45-65 psi, Fluid 10-20 psi HVLP: 1.2-1.4 mm nozzle orifice input air < 45 psi Fluid 5-15 psi Air Assisted, 0.23-0.28 mm nozzle orifice Electrostatic(4500) Fluid 1800-2500 psi, Atomizing air 55-65 psi
 Number of Coats	Spray a single wet coat. Allow 30-45 minutes flash-off between coats for gloss coatings, 646-58 Series and 696-58-C002, and 15-30 minutes flash-off for 656, 666 Series, and 696-58-C003 semi-gloss and flat coatings. Apply a second wet coat.
 Note: Hiding	Some colors may require a higher film thickness to achieve opacity, (i.e. certain reds, yellows and oranges) or a base color may need to be applied first to achieve opacity for the final color.
 Note: Recoat	Minimum recoat time: 30 minutes Maximum recoat time: 48 hour maximum (with no reactivation) - 58 Series may be recoated with an additional application of 58-series within 48 hours with no reactivation. - If a drying time of 48 hours is exceeded, reactivate with e.g. Scotch-Brite® Type A very fine. - 58 Series may be recoated up to 7 days when reactivated with sanding paper P220 and properly cleaned and degreased.
 Cleaning of Equipment	Use TR-19, TR-36, C28/15, MEK or a VOC-compliant solvent blend.

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Physical Properties

Drying Times (25 +/- 2ºC / 77 +/- 2ºF, 55 +/- 5% RH)	
Dry to touch	4 hrs
Dry to tape, gloss	10-12 hrs
Dry to tape, semi-gloss	8 hrs
Dry to tape, flat	6 hrs

Alternate Force Cure

There are two force cure conditions possible.

1. To determine sufficient cure to be able to reduce dry to tape and handle components:
    a. Induct mixed topcoat for 30 minutes
    b. Apply
    c. Air dry for one hour at 75°F (24°C)
    d. Force cure for 2 hours at 120°F(49°C)

The cure required will vary due to the efficiency of the oven being used (evacuating the solvent heavy air) and the amount of air movement in the oven. The customer should run tests to verify the required cure schedule.

2. To determine sufficient cure to test the product for full cure properties
    a. Induct mixed topcoat for 30 minutes
    b. Apply
    c. Air dry for 24 hours at 75°F (24°C)
    d. Force cure for 24 hours at 150°F(65°C)

Allow parts to return to cool completely before testing.

Theoretical Coverage

19.6 m2 per liter ready to apply at 25.4 μm dry film thickness
800 ft2 per US gallon ready to apply at 1 mil dry film thickness

Dry Film Weight

32.8 – 39.7 g/m^2/at 25.4 microns
.0067 - .0082 lbs/ft^2/ at 1mil

Varies slightly with color and gloss.

Volatile Organic Compounds

Max 420 g/l
Max 3.5 lb/gal

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Gloss (60º)	90 GU minimum	646-58 Series, 696-58-C002
	15-45 GU	656-58 Series
	10-25 GU	696-58-C003
	5 GU maximum	666-58 Series
	9 GU maximum (85°)	666-58 Series
Color	As required	
Flash-point	646-58-XXXX	25°C / 77°F
	656-58-XXXX	24°C / 76°F
	666-58-XXXX	-5°C / 23°F
	696-58-CXXX	25°C / 77°F
	X-501	36°C / 96°F
	X-503	39°C / 102°F
Storage	Store the product dry and at a temperature between 5 and 38ºC / 40 and 100ºF per AkzoNobel Aerospace Coatings specification. Store in the original unopened containers. Storage temperature may vary per OEM specification requirements. Refer to container label for specific storage life information.	
Shelf life 5 - 38°C (40 - 100°F)	24 months per AkzoNobel Aerospace Coatings commercial specification. Shelf life may vary due to OEM specification requirements. Refer to container label for specific shelf life information.	
Packaging	646-58 Series 2 gallon kit	
	656-58 Series 1 gallon kit	
	666-58 Series 1 gallon kit	
	696-58 Series 1 gallon kit	

Safety Precautions

Comply with all local safety, disposal and transportation regulations. Check the Material Safety Data Sheet (MSDS) and label of the individual products carefully before using the products. The MSDS's are available on request.

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Issue date: March 2015 (supersedes October 2014) - FOR PROFESSIONAL USE ONLY

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