



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. 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.

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
EADS (CASA)	Z-12.390
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

The complete AkzoNobel Aerospace Coatings qualified product list (QPL) can be found at: www.akzonobel.com/aerospace

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, 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
		<ul style="list-style-type: none"> - Stir or Shake until all pigment in base component is uniformly dispersed before adding curing solution. - Add curing solution and stir the catalyzed mixture thoroughly 	
	Induction Time	30 minutes	
	Initial Spraying Viscosity (25°C/77°F)	15 – 30 seconds Ford #4 17 - 32 seconds Signature Zahn-Cup #2 25 – 75 seconds ISO Cup #4	
		<p>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.</p>	
	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 (25°C/77°F)	4 hours.	
	Dry Film Thickness (DFT)	43 – 58 micron (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.



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, Electrostatic(4500) 0.23-0.28 mm nozzle orifice
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.



Physical Properties



Drying Times
(25 +/- 2°C / 77
+/- 2°F, 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/m²/at 25.4 microns
.0067 - .0082 lbs/ft²/ at 1mil

Varies slightly with color and gloss.



Volatile Organic
Compounds




Max 420 g/l
Max 3.5 lb/gal



Gloss (60°)

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	<table border="0"> <tr><td>646-58-XXXX</td><td>25°C / 77°F</td></tr> <tr><td>656-58-XXXX</td><td>24°C / 76°F</td></tr> <tr><td>666-58-XXXX</td><td>-5°C / 23°F</td></tr> <tr><td>696-58-CXXX</td><td>25°C / 77°F</td></tr> <tr><td>X-501</td><td>36°C / 96°F</td></tr> <tr><td>X-503</td><td>39°C / 102°F</td></tr> </table>	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
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 38°C / 40 and 100°F 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	<table border="0"> <tr><td>646-58 Series</td><td>2 gallon kit</td></tr> <tr><td>656-58 Series</td><td>1 gallon kit</td></tr> <tr><td>666-58 Series</td><td>1 gallon kit</td></tr> <tr><td>696-58 Series</td><td>1 gallon kit</td></tr> </table>	646-58 Series	2 gallon kit	656-58 Series	1 gallon kit	666-58 Series	1 gallon kit	696-58 Series	1 gallon kit				
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 MSDSs are available on request.

Issue date: November 2013 (supersedes September 2013) - FOR PROFESSIONAL USE ONLY

IMPORTANT NOTE The information in this data sheet is not intended to be exhaustive and is based on the present state of our knowledge and on current laws: any person using the product for any purpose other than that specifically recommended in the technical data sheet without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at his own risk. It is always the responsibility of the user to take all necessary steps to fulfill the demands set out in the local rules and legislation. Always read the Material Data Sheet and the Technical Data Sheet for this product if available. All advice we give or any statement made about the product by us (whether in this data sheet or otherwise) is correct to the best of our knowledge but we have no control over the quality or the condition of the substrate or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing otherwise, we do not accept any liability whatsoever for the performance of the product or for any loss or damage arising out of the use of the product. All products supplied and technical advice given is subject to our standard terms and conditions of sale. You should request a copy of this document and review it carefully. The information contained in this data sheet is subject to modification from time to time in the light of experience and our policy of continuous development. It is the user's responsibility to verify that this data sheet is current prior to using the product.

Brand names mentioned in this data sheet are trademarks of or are licensed to AkzoNobel.