58 Series (Gloss)

Technical Data Sheet

Product Group

Polyurethane Top Coat

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.

Besides gloss, this product is also available in semi-gloss and camouflage appearance (alternative TDS). 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

Base	646-58-XXXX
Curing Agent	Curing Solution X-501

Specifications

Qualified Product List

Boeing Long Beach	DPM 6330-1
Embarer	MEP 10-117, TY I
German Army WIWEB	TL 8010-0046
Italian Air Force	AER(EP).M-P-001
Mitsubishi	MMS 420
Northrop Grumman	GP110AEF
UK Ministry of Defense	BS 2X 34 Type A and B
US Military	MIL-PRF-85285, TYI CL H

Surface Conditions

Surface Preparation/ Cleaning

Surface pretreatment is an essential part of the painting process. Apply 58 Series only over fresh or reactivated primed surfaces.
Clean aged primer and sand/abrade to a uniform matt finish using grade P320 sandpaper or an aluminum oxide non-woven abrasive pad.
Clean and degrease the surface with an approved cleaning solvent prior to application.
Remove dust and debris with a clean tack rag or equivalent.

Recommended primers are as follows:
-High solids 10P20-12, 10P20-13, 10P20-14, Alumigrip 10P8-11 or 10P20-44MNF, Aerodur HS 2121
-Conventional solids Epoxy Primer 37035A
-Waterborne 10PW20-4
-Low Viscosity Aerodur 2100 MgRP

Instruction for Use

Spray Application (Mix Ratio)

	Volume
646-58-XXXX	1 part
Curing Solution X-501	1 part

-Allow products to acclimatize to ambient conditions before use.
-Stir or shake the base component thoroughly to a homogeneous state prior to the addition of the curing solution.
-Add curing solution and stir the catalyzed mixture thoroughly prior to application.

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Induction Time	30 minutes
Initial Spraying Viscosity (25°C/77°F)	15 – 30 seconds Ford Cup #4 25 – 75 seconds ISO Cup #4 25 – 75 seconds Gardner Signature Zahn Cup #2 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 µm 1.7 – 2.3 mils

Application Recommendations

Conditions

Temperature:	15 – 35 °C 59 – 95 °F
Relative Humidity:	20 – 75 %

Note

The quality of the application of all coatings will be influenced by the spray equipment chosen and the temperature, humidity, and airflow 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 the appearance of the coating.

Equipment Recommendation

Spray gun type	Product supply	Fluid Pressure	Nozzle orifice	Product flow	Dynamic air pressure at gun-inlet *
Conventional	N/A	N/A	1.2-1.4 mm	N/A	3-5 bar / 43-73 psi
HVLP / Next Generation	N/A	N/A	1.2-1.4 mm	N/A	2-2.5 bar / 29-36 psi**
Air Atomizing (electrostatic)	N/A	N/A	1.2-1.5 mm	230-350 ml/min	4-5 bar / 58-73 psi
Pressure Atomizing (electrostatic)	N/A	124-172 bar / 1.8-2.5k psi	0.009-0.011 in / 60°	260-300 ml/min	4-4.5 bar / 58-65 psi

*Measured with an open trigger.
**General advice to meet the HVLP / next-generation spray gun requirements. Please validate with your local authorities.

Number of Coats

Apply a single wet coat. Allow 30-45 minutes flash-off time between coats at ambient conditions. Apply a second wet coat to achieve the required dry film thickness.

Some colors may require a higher film thickness to achieve opacity (e.g., certain reds, yellows, and oranges). A base color may need to be applied first before application of the final color. This is to reduce the number of coats necessary for industrial hiding.

Note

Flash-off time refers to the elapsed time between the start of the first coat application and the start of the second coat application. Paint should have very little transfer when touched to indicate the paint is ready for application of the next coat.

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Cleaning of Equipment

Use TR-19, TR-36, C28/15, MEK or a VOC-compliant solvent blend.

Physical Properties

Drying Times

	25°C/77°F, 55% RH
Dry to Touch	4 hrs
Dry to Tape	10-12 hrs
Recoatable Minimum	30 minutes
Recoatable Maximum	48 hours (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 P320 grade sandpaper or an aluminum oxide non-woven abrasive pad.
-58 Series may be recoated up to 7 days when reactivated.

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)

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)

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. It is recommended to run tests to verify the required cure schedule.

Flash-off times, dry times, and recoat times will vary depending on combinations of temperature, humidity, and airflow. Temperature, wet film thickness, and flash-off time can affect gloss readings, so it is recommended to adhere to the application guidelines above.

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 µm
.0067 - .0082 lbs/ft²/ at 1mil
Varies slightly with color and gloss.

Volatile Organic Compounds

Maximum 420 g/l.
Maximum 3.5 lbs/gal

Gloss

90 GU minimum 646-58 Series, 696-58-C002

Color

As required.

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	Flash Point	646-58-XXXX	25°C / 77°F
		Curing Solution X-501	36°C / 96°F
	Shelf life 5 - 38°C (41 - 100°F)	646-58-XXXX	24 months
		Curing Solution X-501	24 months

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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