

X1-6500 Flex-Coat Topcoat

Technical Data Sheet (TDS)

Product Description

Endura X1-6500 Flex-Coat Topcoat is a highly cross-linked, highly flexible polyurethane coating.

Product features:

Outstanding resistance to chemicals, abrasion, and impact
Available in: High, Medium, Low, and No gloss
A library of over 40,000 colors (color matching service available)

High gloss and color retention
Available with PTFE/Teflon™ for additional protection

Recommended Uses

X1-6500 Flex-Coat Topcoat was created to meet the unique needs of fabric-covered aircraft. It is also suitable for other applications where high flexibility is required. X1-6500 Flex-Coat Topcoat is designed to be applied over Endura X2-7000 Epoxy Urethane Flex-Sealer System.

Product Characteristics

Gloss: ASTM D2457	Slight gloss variations will occur depending on color.	High: 90+ GU at 60°
Volume Solids Mixed unreduced:	Volume solids will vary by color	43% ± 4%
Pot Life: (77°F (25°C) and 50% RH)		8-10 Hours
Note: This will vary depending on converter used and addition of Aerocat II		
VOC Mixed (Unreduced): EPA Method 24: Typical		340 g/l 2.8lb /gal
Contact your Endura Aviation representative for exact VOC of color/converter combinations		
Shelf Life:		
Component A		3 years
Component B		2 years
Component C		5 years
Reducers		10 years
For unopened product (77°F (25°C))		

Surface Preparation

X1-6500 can be applied over all Endura Aviation primer sealers and primer surfacers without sanding during their topcoat window. The topcoat window varies with each primer. See the relevant primer technical data sheet for the specific topcoat window data. If the primer topcoat window has been surpassed; the primer should be sanded with 240 – 280 grit sandpaper or 3M™ Red Abrasive pads to achieve inter-coat adhesion. All sanding dust must be blown off prior to application of the topcoat.

Mix Ratio

2 parts by volume of X1-6500 Component A [XLRXXXXX] varies depending on the color
1 part by volume of X1-1000 Component B [XUB01000]
1 part by volume of Converter Component C [XUCXXXXX] varies depending on converter

Available Converters - Standard	Product Code	Available Converters - Low VOC	Product Code
X1-2230 FAST CONVERTER	XUC02230	X1-1230 LOW VOC FAST CONVERTER	XUC01230
X1-2220 MED CONVERTER	XUC02220	X1-1220 LOW VOC MED CONVERTER	XUC01220
X1-2210 SLOW CONVERTER	XUC02210	X1-1210 LOW VOC SLOW CONVERTER	XUC01210

Temperature range recommendations for converter use.

Temperature Range	40°F - 59°F (5°F - 15°C)	59°F - 77°F (15°C - 25°C)	77°F - 104°F (25° - C40°C)
Converter	Fast	Medium	Slow
Reducer (optional)	Fast	Medium	Slow
Aerocat I or II	Optional	Optional	Optional

Optimal finish is obtained when product and object are 70-77°F (20-25°C) and RH of 50%.

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Other X1-6500 B components are available for different ambient conditions and application requirements. For questions regarding which component B is right for your application, contact your Endura Aviation Representative

Application

X1-6500 Topcoat can be applied using most spray-painting systems.

Ensure that any solvent absorbent primer surfacers are properly sealed with a primer sealer prior to application of the topcoat.

Solid Colors:

Apply two single wet coats. It is recommended that a thinner first coat be applied at 1.5 – 2.0 mils wet, followed by a second wet coat of 2.0 - 3.5 mils wet. Recommended 30 – 40 minutes between coats.

Metallic Colors:

Three coats are recommended for metallic colors. Apply two medium coats. Recommended 30-40 minutes flash off time between coats. Immediately following the second wet coat apply a third “mist coat” to achieve a uniform finish. A high-hide version of any metallic color can be used and then clear coated for superior gloss retention and UV stability.

Be aware when more than three coats of paint are applied in a given 12-hour shift (including primer, topcoats and clear coat). If more than 3 coats have been applied, 10-12 is recommended to pass to allow for proper solvent evaporation.

After 24 hours X1-7500 Topcoat must be sanded to achieve inter-coat adhesion.

Metallics and pearls must be topcoated within this re-coat window as sanding is not recommended.

Spray Gun Setup			
Feed Type	Fluid Tip	Application Pressures (Heel of gun)	Fluid Delivery
Siphon Feed	1.6-1.8 mm	40-50 psi	
Gravity Feed	1.3-1.4 mm	30-40 psi	
Pressure Feed	1.0-1.4 mm	55-65 psi	12-14 oz/min
Air Assist Airless	9-13 thou	1000-1800 psi	
Airless	9-13 thou	1000-3000 psi	

Suggested Viscosity Ranges		
	Ford 4 Viscosity Cup at 68°F (20°C)	Zahn #2 Viscosity Cup at 68°F (20°C)
Conventional	15-16 secs	18-20secs
Airless	18-19 secs	20-22secs
Air Assisted Airless	15-18 secs	19-21secs

The above target viscosities are suggested as a starting point and can be adjusted depending on desired finish. Spraying viscosity and thinning will depend on ambient conditions and spray equipment used.

If required, recommended spraying viscosity is achieved by reducing with one of the desired Endura Aviation topcoat thinners/reducers.

Standard		Low VOC	
X1-3030 FAST REDUCER	[XUR03030]	X1-2030 LOW VOC FAST REDUCER	[XUR02030]
X1-3020 MED REDUCER	[XUR03020]	X1-2020 LOW VOC MED REDUCER	[XUR02020]
X1-3010 SLOW REDUCER	[XUR03010]	X1-2010 LOW VOC SLOW REDUCER	[XUR02010]

Film Build

Endura X1-6500 Topcoat has a recommended film build thickness of:

Wet: WFT Unreduced	3.5 – 5.5 mils	89 – 140 microns
Dry: DFT	1.5 – 2.5 mils	38 – 63 microns

Poor hiding colors film build may be higher.

Theoretical coverage at 1.0 mil (25 microns) Average DFT: 694 ft² per gallon at 100% transfer efficiency.

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Dry Times

77°F (25°C) and 50% RH	X1-1230 C Low VOC Fast Converter XUC01230	X1-2230 C Fast Converter XUC02230
Gel Time/Pot Life	8 Hours	8 Hours
Cure to Touch	2.5 hours [30 minutes]	3 hours [30 minutes]
Cure to Handle	6.5 hours [1 hour]	7.5 hours [1 hour]
Full Cure	7-14 Days	7-14 Days

77°F (25°C) and 50% RH	X1-1220 C Low VOC Medium Converter XUC01220	X1-2220 C Medium Converter XUC02220
Gel Time/Pot Life	12 hours	12 hours
Cure to Touch	6 hours [1 hour]	5 hours [1 hour]
Cure to Handle	10.5 hours [2 hours]	9.5 hours [2 hours]
Full Cure	7-14 Days	7-14 Days

77°F (25°C) and 50% RH	X1-1210 C Low VOC Slow Converter XUC01210	X1-2210 C Slow Converter XUC02210
Gel Time/Pot Life	17 hours	17 hours
Cure to Touch	8.5 hours [1.5 hours]	7.5 hours [1.5 hours]
Cure to Handle	13 hours [3 hours]	15 hours [3 hours]
Full Cure	7-14 Days	7-14 Days

Dry Times are subject to ambient conditions (temperature and humidity) and good airflow and film build of the topcoat.

The use of Aerocat II will accelerate drying times. [Time] indicates approximate minimum time achievable when the maximum recommended amount of Aerocat II is added. See the Aerocat II TDS for more information.

Clear Coating Information

X1-6500 can be clear coated with Endura X1-5500 Clear or X1-4500 Polish Clear if required.
X1-6500 Topcoat must be sanded after 24 hours 68°F (20°C) to achieve inter-coat adhesion.

Metallics and pearls must be topcoated within this re-coat window as sanding not recommended.

Clear coats can be applied as soon as the topcoat surface has cured enough to wipe with a tack cloth. Apply 2-3 wet coats at 2.0 – 3.0 wet mils with a 15 – 20-minute flash off between coats.

Clean Up

Clean all equipment immediately after use with Endura high strength gun wash, or Endura X1 Reducers. Follow manufacturer's safety recommendations when using any solvent.

Component B Selector

X1-2000 Aviation H.A.T. B – For use in high ambient temperatures above 86°F (30°C)

1 part by volume of X1-7500 Component A [XLRXXXXX] varies depending on the color
1 part by volume of X1-2000 Component B [XUB02000]

For questions regarding which component B is right for your application, contact your Endura Aviation Representative.

Ordering Information (sizing)

X1-6500		2 mixed quarts (1.89l)		1 mixed gallon (3.78l)
Comp A	XLRXXXXX-020	1 quart (946 ml)	XLRXXXXX-020	2 quarts (1.89l)
Comp B	XUB01000-010	1 pint (473ml)	XUB01000-020	1 quart (946 ml)
Comp C -	XUCXXXXX-010	1 pint (473ml)	XUCXXXXX-020	1 quart (946 ml)
Comp A- Part number varies by color			Comp C - Part number varies with converter	

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X1-7500		4 mixed gallons (15.12l)
Comp A -2X	XLRXXXXX -030	2 gallons (7.56l)
Comp B	XUB01000-030	1 gallon (3.78l)
Comp C -	XUCXXXXX-030	1 gallon (3.78l)
Comp A - Part number varies by color		
Comp C - Part number varies with converter		

Environmental Conditions

For optimum coating performance product, substrate and ambient temperature should be between 68°F-77°F (20°C-25°C). To prevent condensation during application the surface temperature must be 5°F (3°C) or more above the dew point at all times.

For use outside this range please contact your Endura Aviation Representative.

Specifications

Characteristic	Test Method	Result
Hardness	ASTM D3363	2H
Solvent Resistance	ASTM D4752	100 MEK rubs, NO failure
Impact resistance	ASTM D2794	100 in. lbs.; NO failure
Taber Abrasion	ASTM D4060	32 mg loss
Flexibility	ASTM D522	1/8" mandrel bend: NO failure
Service Temperature	-40°F to 360°F	-40°C to 182°C

Safety Precautions

Please refer to all Safety Data Sheets (SDS) before using this product. SDS sheets can be found on our website at www.EnduraAviation.com.