

X1-7500 Topcoat

Technical Data Sheet (TDS)

Conforms to: (MIL-PRF-85285 TYPE 1 and TYPE 2 CLASS H)

Product Description

Endura X1-7500 Topcoat is a three component, highly cross-linked, high-performance polyurethane coating.

Product features:

- High gloss and color retention
- Outstanding resistance to chemicals, abrasion and impact
- Available with PTFE/Teflon™ for additional protection
- A library of over 40,000 colors (color matching service available)
- Available in: High, Medium, Low and No gloss
- Skydrol® protection

Recommended Uses

X1-7500 Topcoat was created to meet the unique needs of aircraft. It is suitable for aluminum, steel and composite substrates that have been coated with Endura X2 Primers and Sealers.

Mix Ratio

| | | |
|-------------------------------|-------------|--|
| 2 parts by volume of X1-7500 | 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 |

NOTE: Other X1-7500 B components are available for different ambient conditions and application requirements. See the Component B Selector or contact your Endura Aviation Representative.

| Available Converters - Standard | Product Code |
|---------------------------------|--------------|
| X1-2230 FAST CONVERTER | XUC02230 |
| X1-2220 MED CONVERTER | XUC02220 |
| X1-2210 SLOW CONVERTER | XUC02210 |

| Available Converters - Low VOC | Product Code |
|--------------------------------|--------------|
| X1-1230 LOW VOC FAST CONVERTER | XUC01230 |
| X1-1220 LOW VOC MED CONVERTER | XUC01220 |
| X1-1210 LOW VOC SLOW CONVERTER | XUC01210 |

Temperature range recommendations for converter use:

| Temperature Range | 40°F - 59°F (5°C - 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 |

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

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Product Characteristics

| | |
|--|-----------------------|
| Gloss: ASTM D2457 | High: 90+ GU at 60° |
| Slight gloss variations will occur depending on color. | |
| Volume Solids Mixed:(Unreduced) | 43% ± 4% |
| Volume solids will vary by color | |
| Pot Life: (77°F (25°C) and 50% RH) | 8-10 Hours |
| Note: This will vary depending on converter used and addition of Aerocat I or II | |
| VOC Mixed (Unreduced): EPA Method 24: Typical | 340 g/l 2.8lb /gal |
| VOC content will vary with each color and converter used. 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

X1-7500 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.

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Application

X1-7500 Topcoat can be applied using most spray-painting systems.

Note: 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 any given 12-hour shift (including primer, topcoats and clear coat). If more than 3 coats have been applied, 10-12 hours is recommended to pass to allow for proper solvent evaporation.

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

Note: 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 | |

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Spraying Viscosity

| Ford 4 Viscosity Cup at 68°F (20°C) | Zahn #2 Viscosity Cup at 68°F (20°C) |
|--|--|
| <p>Viscosity in seconds Reduce viscosity as required</p> <p>UNREDUCED → REDUCED</p> <p>19 18 17 16 15</p> <p>Airless Conventional</p> <p>Air Assist Airless</p> | <p>Viscosity in seconds Reduce viscosity as required</p> <p>UNREDUCED → REDUCED</p> <p>22 21 20 19 18</p> <p>Airless Conventional</p> <p>Air Assist Airless</p> |

Note: 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 | [XUR02030] |
| X1-3010 SLOW REDUCER | [XUR03010] | X1-2010 LOW VOC SLOW REDUCER | [XUR02030] |

Film Build

Endura X1-7500 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 |

Note: With 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

| | X1-1230 C Low VOC Fast Converter XUC01230 77°F (25°C) and 50% RH | X1-2230 C Fast Converter XUC02230 77°F (25°C) and 50% RH |
|-------------------|---|---|
| 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 |

| | X1-1220 C Low VOC Medium Converter XUC01220 77°F (25°C) and 50% RH | X1-2220 C Medium Converter XUC02220 77°F (25°C) and 50% RH |
|-------------------|---|---|
| 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 |

| | X1-1210 C Low VOC Slow Converter XUC01210 77°F (25°C) and 50% RH | X1-2210 C Slow Converter XUC02210 77°F (25°C) and 50% RH |
|-------------------|---|---|
| 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 |

Important note: The use of AeroCat I or II will accelerate drying times. [Time] indicates approximate minimum time achievable when the maximum recommended amount of AeroCat I or II is added.

See the AeroCat I or II TDS for more information.

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

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Clear Coating Information

X1-7500 can be clear coated with Endura X1-5500 Clear or X1-4500 Polish Clear if required.

Note: X1-7500 Topcoat must be sanded after 24 hours 68°F (20°C) to achieve inter-coat adhesion.

Note: Metallics and pearls must be topcoated within this re-coat window as sanding is 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.

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.

Clean Up

Clean all equipment immediately after use with Endura high strength gun wash or Endura X1 or X2 Reducers.

Follow manufacturer's safety recommendations when using any solvent.

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Ordering Information (sizing)

X1-7500 Topcoat is available in the following sprayable sizes: 2 quarts, 1 gallon, 4 gallons Kits

| 2 Mixed Quarts | | |
|--|----------|-------|
| Comp A X1-7500 Part number varies by color | XLRXXXXX | 1 Qt. |
| Comp B X1-1000 | XUB01000 | 1 Pt. |
| Comp C Part number varies with converter | XUCXXXX | 1 Pt. |

| 1 Mixed Gallon | | |
|--|----------|--------|
| Comp A X1-7500 Part number varies by color | XLRXXXXX | 2 Qts. |
| Comp B X1-1000 | XUB01000 | 1 Qt. |
| Comp C Part number varies with converter | XUCXXXX | 1 Qt. |

| 4 Mixed Gallon | | |
|--|----------|---------|
| Comp A X1-7500 Part number varies by color | XLRXXXXX | 2 Gals. |
| Comp B X1-1000 | XUB01000 | 1 Gal. |
| Comp C Part number varies with converter | XUCXXXX | 1 Gal. |

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.

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

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Specifications

| CHARACTERISTIC | TEST | 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.