

## 03 Series Polyurethane Military Topcoats

### Product Description

03 Series are chemically cured, polyurethane topcoats intended for use on exterior application on aircraft and aerospace equipment. When used over properly applied commercial or military primers, it provides excellent protection against weathering, humidity and salt spray.

- Good gloss level and color retention
- Resistant to hydraulic fluids, lubricating oils, JP-5 fuel and water
- Compatible with many types of spray equipment
- Service temperature -54°C to 177°C (-65°F to 350°F)

### Components



#### Mix ratio (by volume) for gloss colors:

- 03 Series (base component) 1 parts
- 03CAT (catalyst component) 1 part



#### Mix ratio (by volume) for semi-gloss colors:

- 03 Series (base component) 3 parts
- 03CAT (activator component) 1 part

#### Mix ratio (by volume) for camouflage colors:

- 03 Series (base component) 3 parts
- 03CAT (activator component) 1 part

### Specifications



03 Series polyurethane military topcoats are qualified to:

- 760-04182
- GP110AEF
- MIL-PRF-85285 Type I
- MMS-420
- MS-461
- WS26052

*Note: PPG Aerospace recommends you check the most recent specification QPLs for updated information.*

#### Product Compatibility:

03 Series polyurethane military topcoats are compatible with the following primers:

- DMS 1786
- MIL-P-53022
- MIL-PRF-23377
- MIL-PRF-85582
- MMS-423
- TT-P-2760

## Surface Preparation and Pretreatments



03 Series polyurethane military topcoats can be applied over clean, dry, and intact Desoprime™ epoxy and Koroflex® primers. 03 Series polyurethane military topcoats may be applied over the primer with no abrasion if the primer was applied between 4 and 48 hours before top coating. If it is longer, then abrade the primer surface and clean the surface with Desoclean™ 110 mild solvent cleaner. For further information, refer to the technical data sheet for the above mentioned primers.

## Instructions for Use



### **Mixing Instructions:**

#### **Gloss Colors:**

Thoroughly stir or mechanically shake the base component (Part A) for at least 10 minutes before combining to ensure all solids are completely dispersed. Add one volume of catalyst component (Part B) to one volume of base component (Part A). Do not use the catalyst component (Part B) from another color. Mix by hand stirring, paint shaker or mechanical mixing to ensure the base/catalyst mixture is homogeneous. Do not shake or mechanically mix the admixed material for longer than 10 minutes.

#### **Semi-Gloss and Camouflage Colors:**

Thoroughly stir or mechanically shake the base component (Part A) for at least 10 minutes before combining to ensure all solids are completely dispersed. Add one volume of catalyst component (Part B) to three volumes of base component (Part A). Do not use the catalyst component (Part B) from another color. Mix by hand stirring, paint shaker or mechanical mixing to ensure the base/catalyst mixture is homogeneous. Do not shake or mechanically mix the admixed material for longer than 10 minutes.

Thinners are not required for the mixed material. Available thinners for polyurethanes are MIL-T-81772B Type I\* (IS-213), VOC Exempt Reducer (IS-256) and Low HAPS thinner (IS-260). Do not add thinners to attempt to compensate for coatings beyond its useful pot life

*Note: It is important to condition the paint for 24 hours prior to mixing by placing all materials in the shop or hangar, with ambient temperatures between 13° and 35°C (55° to 95°F). The minimum temperature of the paint components should be 13°C (55°F) prior to mixing.*



### **Induction Time:**

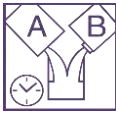
Not Required



**Viscosity:** (23°C/73°F)

- #2 Zahn cup 41 seconds maximum
- #4 Ford cup 30 seconds maximum
- ISO 4 cup 68 seconds maximum
- BSB3 cup 66 seconds maximum
- BSB4 cup 36 seconds maximum
- AFNOR #4 cup 34 seconds maximum

*Note: Viscosities quoted are typical values obtained when using specified mix ratio.*



**Pot Life:**

4 hours @ 21 - 25°C (70 - 77°F)

**Application Guidelines**

**Recommended Application Conditions:**

Temperature	15 - 30°C (59 - 86°F)
Relative Humidity	20 - 90%

**Application:**

Coating may be applied over properly cleaned composite surfaces, epoxy primer coatings or polyurethane coatings. Apply the topcoat using two coats to a total dry film thickness of 1.7 - 2.3 mils. Apply the first coat as a light (mist) coat. Allow the coat to set for 30 - 60 minutes (depending on airflow, temperature and humidity) before applying the second coat to permit solvent evaporation. Apply the second coat in a full wet coat to achieve the desired film thickness. Conventional, Air, Air Assisted Airless, HVLP, Electrostatic spray equipment may be used to apply this material. For your application, please contact the equipment manufacturer for more specific information on Conventional, HVLP or Electrostatic spray applications, and recommendations on hose diameter and lengths.

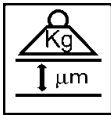
*These application guidelines represent PPG's best advice in standard conditions. Some parameters will be influenced by environmental conditions, equipment settings, and other variables.*



**Theoretical Coverage:**

19.8 – 21.5 square meters/liter at 25 microns dry film (810 – 874 square feet/gallon at 1 mil dry film)

Recommended dry film thickness; 42 to 58 microns (1.7 to 2.3 mils)

**Dry Film Density:**

1.29 - 1.53 grams/cubic centimeter (10.77 - 12.76 pounds/gallon)

**Dry Film Weight:**

34.7 – 41.23 grams/square meter at 25 microns dry film (0.0071 - 0.0084 pounds/square foot at 1 mil dry film)

**Equipment:**

03 Series polyurethane military topcoats are compatible with all current forms of spray equipment.

Equipment Type	Tip Size	Pot Pressure	Atomization Pressure at the Cap
Electrostatic Air Spray Gun	1.2 mm or 1.5 mm	10 to 20 psi (0.69 to 1.4 bar)	45 to 60 psi (3.1 to 4.1 bar)
Electrostatic Air Assisted Airless Spray Gun	#611 or #613 (Graco Nomenclature)	700 to 1200 psi (48 to 82 bar)	40 to 60 psi (2.8 to 4.1 bar)
High Volume Low Pressure Spray Gun (HVLP)	1.0 mm to 1.4 mm	10 to 20 psi (0.69 to 1.4 bar)	10 psi maximum (0.69 bar)
Conventional Air Spray Gun	1.2 mm to 1.8 mm	10 to 20 psi (0.69 to 1.4 bar)	45 to 60 psi (3.1 to 4.1 bar)

**Equipment Cleaning:**

Clean spray equipment as soon as possible after use. Flush spray equipment with IS-213 Polyurethane Reducer (MIL-T-81772 Type I) DeSoto® CN20, DeSoto® CN44, or Desoclean™ 45 high performance solvent cleaner. Once material is fully cured, use an approved chemical paint removal system to strip off coating.

**Physical Properties (product)****Color:** Available in AMS-C-595 color chips, other color standards and custom colors (AMS-C-595 color 34095 cannot be certified to any material specification)**Gloss:**  
Gloss: >90 G.U. at 60°  
Semi-Gloss: 15 – 45 G.U. at 60°  
Camouflage: <10 G.U. at 85°



<b>Dry Times</b>	<b>22 - 28°C (71 - 84°F)</b>
Set to Touch	6 hours min
Dry to Tape	12 hours minimum
Dry Hard	12 hours maximum
Full Cure	14 days

Forced Dry Schedule: For dry to stack conditions only. Allow a minimum of 30 minutes flash off time at ambient temperatures\* prior to exposing painted parts to high temperatures. Complete testing should be done prior to use. Below are suggested starting points. Other variables may affect these cure schedules.

Temperature	Time
49°C (120°F)	45 minutes
60°C (140°F)	30 minutes
71°C (160°F)	20 minutes
82°C (180°F)	15 minutes

*Note: Ambient temperatures are defined as 70° ± 10°F and 50% ± 10% relative humidity.*

*Note: The cure rates are not affected by humidity.*

*Note: The times listed above are dependent upon film thickness, airflow, and spray technique. Lower film thickness, better airflow, spraying “dry” will decrease the dry-to-tape, and time between coats.*



**VOC:**

Mixed, ready to use VOC (EPA method 24) for all colors is < 420 grams/liter.



**Flash point closed cup:**

Base Component	24°C (76°F)
Activator Component	58°C (136°F)

**Shelf Life:**

12 months from date of manufacture to most OEM material specifications. Consult the specification to verify shelf life requirements.

*Note: Shelf life is provided for original, unopened containers.*

*Note: The application and performance property values above are typical for the material, but not intended for use in specifications or for acceptance inspection criteria because of variations in testing methods, conditions and configurations.*

## Storage Recommendations



Inspect the condition of the container to ensure compliance. The material should be stored at temperatures between 5°C to 35°C (41°F to 95°F) to ensure shelf life.

*Note: When procuring to a qualified material specification, follow those storage instructions.*

## Health Precautions

This product is safe to use and apply when recommended precautions are followed. Before using this product, read and understand the Safety Data Sheet (SDS), which provides information on health, physical and environmental hazards, handling precautions and first aid recommendations. An SDS is available on request. Avoid overexposure. Obtain medical care in case of extreme overexposure.

**For industrial use only. Keep away from children.**

**Additional information can be found at: [www.ppgaerospace.com](http://www.ppgaerospace.com)**

**For sales and ordering information call the local PPG office at the numbers listed below:**

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