# 99 Series Defthane APC/ELT® Polyurethane MilitaryTopcoat

## Product description

99 Series Defthane Advanced Performance Coatings are chemically cured, polyurethane topcoats intended for exterior application on aircraft and aerospace equipment. When used over properly applied commercial or military primers, 99 Series coatings provide excellent protection against weathering, humidity and salt spray.

- Excellent 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):**

| | |
|---|---|
| • 99 Series (base component) | 3 parts |
| • 99CAT (activator component) | 1 part |

## Specifications

99 Series polyurethane military topcoats are qualified to:

- DMS 2115*
- MIL-PRF-85285 Type IV Class H
- MIL-PRF-32239*

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

**Product compatibility:**

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

- DMS 1786
- MIL-DTL-53022
- MIL-PRF-23377
- MIL-PRF-32239
- MIL-PRF-85582
- MMS-423
- TT-P-2760

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## Surface preparation and pretreatments

99 Series polyurethane military topcoats can be applied over clean, dry, and intact Desoprime™ epoxy and Koroflex® primers. 99 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. After 48 hours of primer dry time, 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:**

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.*

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**Pot life:**

4 hours @ 21 - 25°C (70 - 77°F)

## Application guidelines

**Optimum recommended application conditions:**

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

**Application:**

Ground the aircraft and the application equipment before top coating. Stir the topcoat slowly during the application.

It is very important to maintain the wet edge during the application in order to avoid dry spots or tiger stripes. Please consult the dry time table for wet edge times.

In a one-coat (crosscoat/box coat) application, apply a medium coat followed immediately by a medium wet coat applied over the same area, except done in alternating spray direction, to a total wet film of 3.0-4.0 mils (75-100 microns).

Note: To avoid surface roughness it is important to prevent the overspray from falling into freshly painted areas. Therefore the paint should be applied in the same direction as the air flow. Also, in painting the wings the application should start at the tips and proceed toward the fuselage, and on the fuselage it should proceed from top to bottom.

Note: A successful application of the coating not only depends on the paint, but also on the skill of the painter who applies the coating. It is the painter's responsibility to adjust their spray technique so they will know exactly how much paint to apply in order to avoid sags and runs without generating orange peel and dry spots

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

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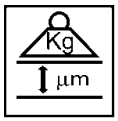
**Theoretical coverage:**

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:**

99 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


**Gloss:** Camouflage: <10 G.U. at 85°

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| Dry times | 22 - 30°C (71 - 86°F) |
|---|---|
| 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.*

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## 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**

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

### Asia Pacific

**ASC – Australia**
Tel 61 (3) 9335 1557
Fax 61 (3) 9335 3490

**ASC – Japan**
Tel 81 561 35 5200
Fax 81 561 35 5201

**ASC – South East Asia**
Tel 65 6861 1119
Fax 65 6861 6162

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Tel (86-512) 6661 5858
Fax (86-512) 6661 6868

**ASC – Tianjin**
Tel (86-022) 2482 8625
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### Europe and Middle East

**ASC – Central Europe**
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Fax 49 (40) 742 139 69

**ASC – Middle East & India**
Tel (971) 4 883 9666
Fax (971) 4 883 9665

**ASC – North Europe**
Tel 44 (0) 1388 770222
Fax 44 (0) 1388 770288

**ASC – South Europe**
Tel 33 (0) 235 53 43 71
Fax 33 (0) 235 53 54 44

### Americas

1 (818) 362-6711 or 1-800-AEROMIX

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Issue Date: 7/21
Lit: 4640