

# QUANTUM<sup>99</sup> POLYURETHANE TOPCOAT



## INTRODUCTION

Quantum<sup>99</sup> Polyurethane Topcoat is a two component acrylic-polyester hybrid coating engineered for beauty and protection in harsh marine environments. This high solids topcoat provides superior protection and beauty to watercraft, aircraft, and other specialty equipment requiring excellent chemical and weather resistance, excellent reparability, superior durability, superior stain resistance, and superior DOI. Available in standard marine, metallic, and custom colors.

## USES

Quantum<sup>99</sup> Polyurethane Metallic is used as a matte base with gloss clear finish coat for spray applications (also available in 2K aerosol cans). Though specifically designed to withstand harsh marine environments and aerospace specifications, Quantum<sup>99</sup> is suitable for almost any application requiring beauty, UV protection, and abrasion/chemical resistance. For exterior and interior use. Do not use below the waterline.

## MIXING



### COMPONENTS

99-M-####	Quantum <sup>99</sup> Polyurethane Metallic Base (various colors)
99-BA1-CLEAR	Quantum <sup>99</sup> Ultra Hi-Gloss Clear Base
99-A-100	Quantum <sup>99</sup> Spray Activator
SR-99	Quantum <sup>99</sup> Medium Spray Reducer
SR-001	Quantum Cool Weather/Fast Reducer
SR-005	Quantum Warm Weather/Slow Reducer



### ADDITIVES

99-X-105	Quantum Polyurethane Accelerator Solution
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### MIX RATIO - METALLIC BASE SPRAY

SPRAY	PARTS	EXAMPLE
99-M-####	4	8 oz.
99-A-100	1	2 oz.
SR-###	0-0.15	0-2.5 oz.



### MIX RATIO - CLEAR GLOSS SPRAY

SPRAY	PARTS	EXAMPLE
99-BA1-CLEAR	1	4 oz.
99-A-100	1	4 oz.
SR-###	0-0.15	0-2.5 oz.





## APPLICATION

### PRIMERS AND SUBSTRATES

Quantum<sup>45</sup> Epoxy Surfacing Primer (220 or finer abraded)  
 Quantum<sup>HB</sup> Epoxy High Build Primer (220 or finer abraded)  
 Quantum 4599 Urethane Primer Sealer  
 Quantum Adhesion Promoting Surface Treatment (45-X-117)  
 Properly prepared gelcoat or previously painted surfaces



### SURFACE PREPARATION

Properly abraded, etched, and cleaned metal surfaces should be primed with corrosion inhibiting primers, such as Quantum<sup>45</sup> Chromated Epoxy Primer. The Quantum<sup>45</sup> Epoxy Surfacing Primer or Quantum<sup>HB</sup> High Build Epoxy Primer should be applied over Quantum<sup>45</sup> Chromated Epoxy Primer and sanded to the desired smoothness before applying the Quantum<sup>99</sup> Topcoat.

Quantum<sup>45</sup> Primers can be applied directly to properly abraded wood, fiberglass/gelcoat, carbon fiber, and previously painted surfaces. Solvent clean with SR-002 Quantum Surface Prep Cleaner prior to application such that surfaces are free from dust, oils, corrosion or any other contaminants using lint free cloth and the wipe-on/wipe-off method. Tack rags are not necessary or recommended prior to Quantum<sup>99</sup> application. Refer to primer data sheets for complete application details. See EMC's Quantum Product Selection Guide for recommended primer/topcoat systems.



### METALLIC BASE SPRAY APPLICATION

1. HVLP: Adjust air pressure at cap to 8-10 psi.
2. Pressure Feed: Adjust air pressure at the gun to 28-32 psi with a fluid delivery of 8-12 ounces per minute.
3. Conventional: Adjust air pressure at the gun to 28-32 psi for pressure feed applications with a fluid delivery of 8-10 ounces per minute.
4. Quantum Metallic Bases can be applied with conventional, HVLP, air-assisted airless, and electrostatic spray equipment using pressure or gravity fluid delivery (brushing not recommended). Apply one medium wet coat, with a 15-45 minute flash time, followed by a second medium wet coat. To minimize tiger striping and mottling, apply final coat diagonally at a distance of 12 to 14 inches from the substrate. Substrate and ambient temperature must be between 50°F (10°C) and 110°F (43°C). The substrate must be at least 5°F (3°C) above the dew point. Relative humidity should be below 90%.

### HI-GLOSS CLEAR SPRAY APPLICATION

5. Quantum Metallic Basecoats have a matte finish and are formulated with the same UV package utilized in Quantum<sup>99</sup> Topcoats. If matte finish is desired, clear coat is not necessary. If gloss finish is desired, allow metallic base to dry for 45-60mins prior to clear coat application. Apply 2 medium coats, waiting 45 minutes between coats of Quantum<sup>99</sup> Clear coat. To further enhance DOI, clear coat can be sanded the next day with 400-600 grit and 1-2 more Coats can be applied.

### EQUIPMENT<sup>1</sup>

Gun Type	Nozzle	Air Pressure
Conventional Siphon Feed	1.2-1.4 mm	28-32 psi
Conventional Gravity Feed	1.2-1.4 mm	28-32 psi
Conventional Pressure Feed	0.8-1.2 mm at 8-10 oz/min	28-32 psi
HVLP Gravity Feed	1.2-1.4 mm	8-10 psi at cap
HVLP Pressure Feed	0.8-1.2 mm at 8-12 oz/min	8-10 psi at cap

<sup>1</sup>Refer to the manufacturer's directions for gun specific recommendations.

**Warning:** topcoats that have been allowed to cure >12 hrs @ 72F must be abraded before subsequent coats are applied. Higher temperatures and urethane accelerators will decrease recoat window.

**NOTE:** Application of these product systems requires recommended temperature/humidity conditions and film thickness ranges. The material, hangar, and substrate temperature should be no lower than 45°F before, during, and after application. Do not apply paint materials to surfaces less than 5°F above dew point, or to surfaces warmer than 125°F. Substrate temperature should be minimum 45°F to maximum 125°F.



## DRY TIMES

AIR DRY - SPRAY <sup>2</sup>	
Touch	1 hour
Through	4 hours
Tape	8 hours
Polish Quantum99 Clear coat	36 hours
Light Service	36 hours
Full Cure	7 days
Overcoat (Self) Metallic	15 mins min / 24 hours max
Overcoat (Clear)	1 hour min / 24 hours max

<sup>2</sup>Air dry and overcoat times are dependent on shop conditions. Use 99-X-105 Urethane Accelerator to accelerate dry times.  
<sup>3</sup>If recoating after 24 hours, scuff sand with 320-800 grit and/or use 45-X-117 Adhesion Promoting Surface Treatment.

## SANDING / COMPOUNDING / POLISHING



### SANDING

Wet sand with 1000 grit or finer or use a foam interface pad with P1000 DA or finer.

### COMPOUNDING

- Apply a ribbon of rubbing compound to the area that was sanded or contains sand scratches.
- Maintain air polisher or variable speed buffer at 1400-1800 rpm. Remove excess finishing compound with a clean soft cloth prior to applying finishing polish.
- Use a wool pad and an effective rubbing compound.



### POLISHING

- Apply a ribbon of polishing material to the area to be polished.
- Maintain a variable speed buffer or an orbital polisher at 1400-1800 rpm.
- Use a foam pad and an effective polishing compound. Keep the polisher/buffer moving at all times. Overlap each pass approximately 50%. As finishing polish begins to dry, stop polishing. Wipe off excess finishing polish with a clean soft cloth.
- Hand buff with a clean soft cloth as a finishing touch.



## PHYSICAL PROPERTIES

Appearance (Gloss):	ultra hi-gloss, various colors
Gloss:	>92 @ 60°
DOI:	>84 @ 20°
Semi-Gloss:	40-70 @ 60°
Satin:	20-40 @ 60°
Flat:	5-20 @ 60°
Viscosity (admixed):	16 - 18 Zahn #2
Volume solids (admixed):	52+/-2%
Pot life:	4 hours @ 72°F
Coverage @ 1 mil (no loss):	800-825 ft <sup>2</sup> /gal
Coverage @ 3 mils (no loss):	250-275 ft <sup>2</sup> /gal
VOC (admixed):	<420 g/l (3.5 lbs/gal) - all colors
Pencil Hardness:	2H
Impact Resistance:	Direct/Reverse > 80 in/lb
Shelf Life:	2 years from DOM

