

Desothane® Evolution - Aviation Single-Stage Topcoat

MACH is a single-stage, 3.5 VOC polyurethane finish designed for the general aviation market. It is available in a full range of solid colors, is easy to apply and achieves a smooth, hard, durable, high-gloss finish. A selection of activators allows for application flexibility in a wide range of environmental conditions.

MACH provides resistance to the chemicals and fluids that can be present in a general aviation environment, including Skydrol®.

MACH is compatible with the following products:

MACH Color	MACH
Aviation Hardener	CAH200
MACH Activator – Fast	CAX500
MACH Activator – Medium	CAX510
MACH Activator – Slow	CAX520
MACH Activator – Very Slow	CAX530

MACH may be applied over:

CA7501 HS Chrome-Free Epoxy Primer
CA7755 HS Epoxy Primer
CA7650 HS Sandable Epoxy Primer/Surfacer

When sanding prior to the application of MACH, use 320 – 400 grit wet or dry.

Application Properties:

Application Temperature	55°F to 95°F (13°C to 35°C)
Application Humidity	10% to 80% R,H,
Mix Ratio (by volume):	



MACH:	3
CAH200 Hardener:	2
CAX Series Activator:	1

Choose Activator (CAX5x0) based on shop conditions and required dry speed.

Pot Life @ 70°F / 50% RH:

2 to 3 hours
High heat and humidity will shorten pot life.

Spray Viscosity:

#2 ZAHN CUP	18 – 22 seconds
#3 ZAHN CUP	7 – 10 seconds
4DIN	12 – 15 seconds
6DIN	N/A
8DIN	N/A

Spray Gun Set-up:

	HVLP	Conventional
Fluid Tip:	1.3 – 1.5 mm	1.3 – 1.5 mm
Air Pressure:	10 PSI at the cap	45 – 60 PSI
Pressure Pot Set-up:	1.0 – 1.4 mm with 8 – 12 fluid ounces/min.	1.0 – 1.4 mm with 8 – 12 fluid ounces/min.

Number of Coats:

2 coats (minimum 15 minutes flash between coats)

Dry Times @ 75°F, 50% RH:

Shop conditions and choice of MACH activator will affect dry times.

	CAX500	CAX510	CAX520	CAX530
Dust Free:	40 min.	65 min.	90 min.	160 min.
Print Free:	50 min.	90 min.	140 min.	210 min.
Tape Time:	2.5 hours	3.5 hours	5.0 hours	7.0 hours
Overspray Melt-in:	10–15 min.	20–30 min.	30–40 min.	> 45 min.
Pot Life:	2 hours	3 hours	4 hours	6 hours

Tape Time is 60 - 100 minutes when force drying at 140°

A full cure of 7 days is required in order to provide desired chemical and fluid resistance performance.

* Force dry times are for quoted metal temperature. Additional time should be allowed in the force drying schedule to allow metal to reach recommended temperature.

Total Film Build:

	Wet	Dry
Minimum	3.0 mils	1.5 mils
Maximum	6.0 mils	3.0 mils

Theoretical Coverage:

690 to 740 sq. ft. depending on color.

Theoretical coverage in sq. ft./U.S. gallon ready-to-spray (RTS), giving 1 mil. (25µm) dry film thickness (assuming 100% transfer efficiency).

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Physical Characteristics:

VOC (Packaged):

MACH	4.20 lbs./gallon or 503 grams/liter
CAH200	2.05 lbs./gallon or 246 grams/liter
CAX500	8.03 lbs./gallon or 962 grams/liter (less exempts)
CAX510	8.10 lbs./gallon or 971 grams/liter (less exempts)
CAX520	8.12 lbs./gallon or 973 grams/liter (less exempts)
CAX530	8.14 lbs./gallon or 976 grams/liter (less exempts)

VOC

(Ready-To-Spray): 3.48 lbs./gallon or 417 grams/liter (less exempts)

Total Solids

By Weight (RTS): 49.0 - 55.07%

Total Solids

By Volume (RTS): 43.0 - 46.0%

Typical Performance Properties

Pencil Hardness	ASTM D3363	2H
Impact Resistance	ASTM D2794	> 100 in-lbs.
Conical Mandrel	ASTM D522	Pass
Gloss (60°)	ASTM D523	90 min.
Weather Resistance		
QUV (1,000-Hrs.)	ASTM G154	90% Gloss Retention, $\Delta E < 1.0$
Xenon-Arc (1,500 KJ)	ASTM G155	85% Gloss Retention, $\Delta E < 1.0$
Graffiti Resistance	ASTM D6578	Very Good
MEK Double Rubs	ASTM D5402	> 50
Chemical Resistance	ASTM D1308	
MEK		Slight Effect
Water		No Effect
Xylene		Slight Effect
NaOH, 10%		No Effect
HCl, 10%		No Effect
H2SO4, 10%		No Effect
Gasoline		No Effect
Diesel Fuel		No Effect
Skydrol		No Effect
Muriatic Acid, 10%		No Effect
Malathion, 2%		No Effect

Typical Performance Properties (Cont.)

Immersion Testing (MIL-PRF-85285D Performance Testing)

Water (24Hrs. @ 75 °F)	No Effect
Dry Heat (1 Hr. @ 250 °F)	$\Delta E < 1.0$
Lubricating Oil (24 Hrs. @ 250 °F)	Mild Staining
Hydraulic Fluid (24 Hrs. @ 150 °F)	No Effect

Immersion Testing (MIL-PRF-85285D Performance Testing)

Jet Fuel A (7 Days @ 75 °F)	No Effect
Marine Diesel Fuel (24 Hrs. @ 120 °F)	Mild Staining
Skydrol (28 Days @ 75 °F)	No Effect

Humidity Exposure (30-Days) ASTM D12247

100% Adhesion Retained (ASTM D3359)
100% Gloss Retained (ASTM D523)

Notes: All results are measured on an MACH White topcoat.

Performance may vary with color choice.

All results are after 7-Days of cure.

All results only valid when a properly selected and applied primer is used.

Health and Safety:

Please refer to Material Data Safety Sheets (MSDS) for full health safety details and storage regulations.

See Material Safety Data Sheet and Labels for additional safety information and handling instructions.

EMERGENCY MEDICAL OR SPILL CONTROL INFORMATION: (412) 434-4515; IN CANADA (514) 645-1320.

Materials described are designed for application by professional, trained personnel using proper equipment and are not intended for sale to the public. Products mentioned may be hazardous and should only be used according to directions, while observing precautions and warning statements listed on label. Statements and methods described are based upon the best information and practices known to PPG Industries. Procedures for applications mentioned are suggestions only and are not to be construed as representations or warranties as to performance, results, or fitness for any intended use, nor does PPG Industries warrant freedom from patent infringement in the use of any formula or process set forth herein.

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