

# How to Produce Award Winning Automotive Model Finishes

Tools, Techniques, and Tips

by

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# Presentation Request/Questions

- Feel free to send me an e-mail at [doctordwp@gmail.com](mailto:doctordwp@gmail.com) to request a PDF copy of this seminar and/or if you have any questions about automotive model finishes

# Preface

- A modeler friend always made very positive comments about my models but was not an automotive modeler; however, he was an excellent scratch-builder and a gearhead. He was always attracted to car models but claimed he could not produce an appropriate automotive model finish so he did not build them. I showed him how to do it at a club meeting and he now almost exclusively builds model cars!

# Preface

- At an NNL East show an individual came up to me as I was collecting my models and asked "if you had one tip to pass along about paint finishes, what would that be?"
- I thought for a minute and replied "learn how to fix mistakes" since no paint job is perfect.

# Personal Background

- Degrees in chemistry
- Gearhead from the age of 2
- Model builder for nearly 60 years
- Owner of Scale Auto Details (decals and resin parts)
- Member of NJIPMS ([www.njipms.org/](http://www.njipms.org/), Garwood, NJ), Silent Traffic model car club (Trappe, PA), Maryland Automotive Modelers Association, and Doylestown Area Modelers' Association

# FIRST IMPRESSIONS RULE!



Finish is EXTREMELY important for automotive models

# References

- "The Art of Airbrushing Show Quality Model Cars", DVD by Don Yost (Lone Wolf Custom Painting)
- Doctor Cranky's books
- "Scale Automotive Finishes", by Pat Covert, Kalmbach Books (1997)
- "Custom Car Modeling", by Mark Gustavson, Kalmbach Books (1999)
- Scale Auto and Model Cars magazines and forums

# Safety - MSDS

## Know your solvents!

**MATERIAL SAFETY DATA SHEET**

FP101  
05 00

DATE OF PREPARATION  
Nov 27, 2009

**SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT NUMBER**  
FP101

**PRODUCT NAME**  
DUPLI-COLOR™ Filler Primer, Gray

**MANUFACTURER'S NAME**  
THE SHERWIN-WILLIAMS CO.  
DUPLI-COLOR Products Group  
Cleveland, OH 44115

**Telephone Numbers and Websites**

Product Information	(800) 247-3270 <a href="http://www.duplicolor.com">www.duplicolor.com</a>
Regulatory Information	(216) 565-2502 <a href="http://www.paintdocs.com">www.paintdocs.com</a>
Medical Emergency	(216) 365-2917
Transportation Emergency	(800) 424-9300
*For Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)	

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**MATERIAL SAFETY DATA SHEET**

DAP1899  
05 00

DATE OF PREPARATION  
Nov 9, 2009

**SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT NUMBER**  
DAP1899

**PRODUCT NAME**  
DUPLI-COLOR™ Primer Sealer, Gray

**MANUFACTURER'S NAME**  
THE SHERWIN-WILLIAMS CO.  
DUPLI-COLOR Products Group  
Cleveland, OH 44115

**Telephone Numbers and Websites**

Product Information	(800) 247-3270 <a href="http://www.duplicolor.com">www.duplicolor.com</a>
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**SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS**

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
15	74-96-6	Propane		
		ACGIH TLV	2500 PPM	760 mm
		OSHA PEL	1000 PPM	
14	106-97-8	Butane		
		ACGIH TLV	800 PPM	760 mm
		OSHA PEL	800 PPM	
4	64742-83-8	V. M. & P. Naphtha		
		ACGIH TLV	300 PPM	12 mm
		OSHA PEL	300 PPM	
		OSHA PEL	400 PPM STEL	
12	108-88-3	Toluene		
		ACGIH TLV	20 PPM	22 mm
		OSHA PEL	100 PPM (SKIN)	
		OSHA PEL	150 PPM (SKIN) STEL	
0.1	91-20-3	Naphthalene		
		ACGIH TLV	10 PPM	1 mm
		ACGIH TLV	15 PPM STEL	
		OSHA PEL	10 PPM	
		OSHA PEL	15 PPM STEL	
35	67-64-1	Acetone		
		ACGIH TLV	500 PPM	180 mm
		ACGIH TLV	750 PPM STEL	
		OSHA PEL	1000 PPM	
3	763-63-3	Ethyl 3-Ethoxypropionate		
		ACGIH TLV	Not Available	1.11 mm
		OSHA PEL	Not Available	
5	14897-96-6	Talc		
		ACGIH TLV	2 mg/m <sup>3</sup> as Resp. Dust	
		OSHA PEL	2 mg/m <sup>3</sup> as Resp. Dust	
3	13463-67-7	Titanium Dioxide		
		ACGIH TLV	10 mg/m <sup>3</sup> as Dust	
		OSHA PEL	10 mg/m <sup>3</sup> Total Dust	
		OSHA PEL	5 mg/m <sup>3</sup> Respirable Fraction	

**SECTION 3 — HAZARDS IDENTIFICATION**

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# Safety - PPE



Make sure respirator fits properly  
Use particulate and organic filter canisters

Wear protective clothes and gloves



# Equipment

## Oil-Free Air Compressor



# Equipment

Air brush



Paint booth



Largest Aztek solvent nozzle



Paint stand (Little Car Company, Reading, PA)



# Equipment

Food Dehydrator



# Equipment

Food Dehydrator



# Supplies



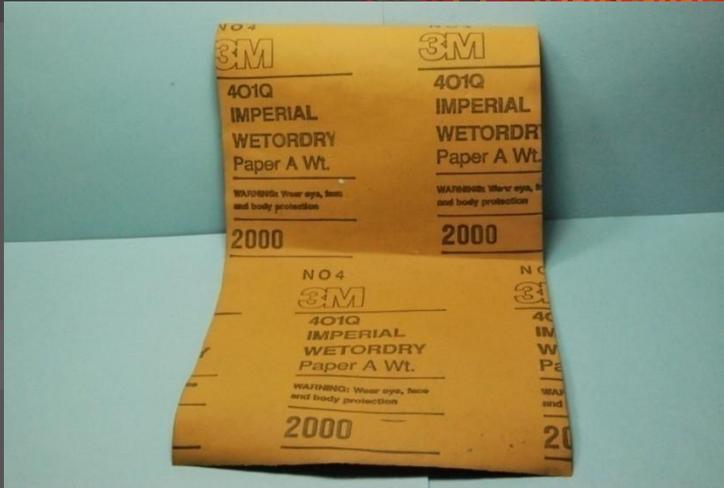
Goop - liquid plastic.  
Styrene dissolved in  
Mar-Hyde lacquer  
thinner



Spot-filler primer.  
Flat Dove Gray enamel  
cut with Dupli-color lacquer  
thinner and thickened  
with talc.



# Supplies



# Supplies

Clear coat tac rag



Cotton gloves

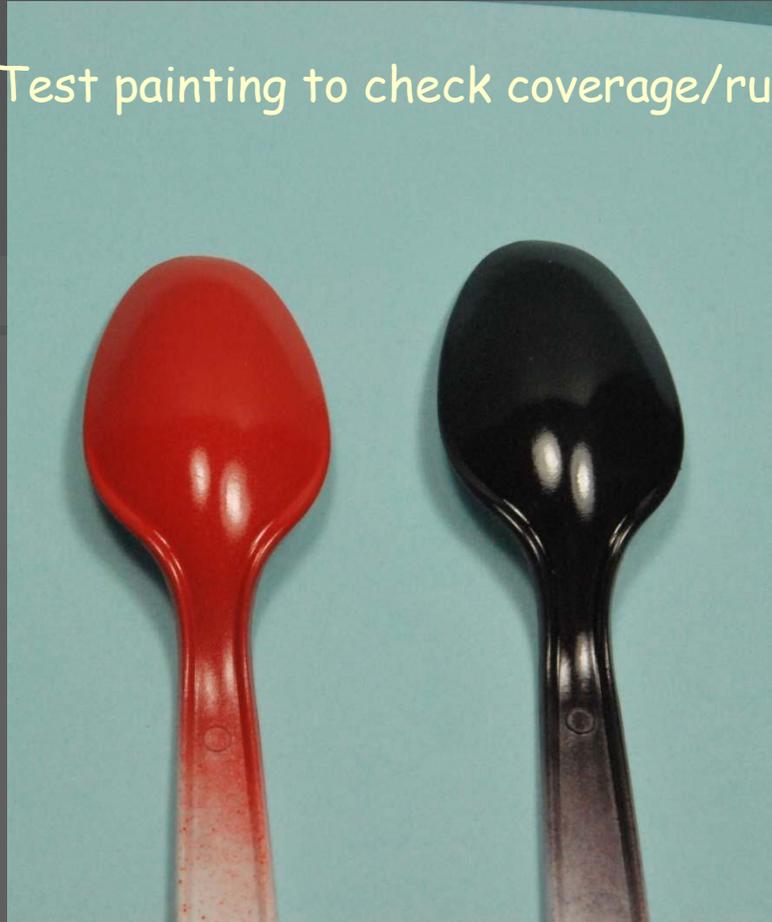


# Supplies

White styrene spoon



Test painting to check coverage/runs/crazing



# Supplies



Stripper for paint

Stripper for paint and kit "chrome"



# Supplies

## Polishing kit



# Supplies



Additional materials for rub-out

Final rub-out and polish



# Supplies

Final cleaning materials



# Primers/Sealers

## Lacquer



## Polyurethane



## Acrylic

# Primers/Sealers

Gunze Mr. Surfacer 1200



Tamiya White Fine Surface Primer

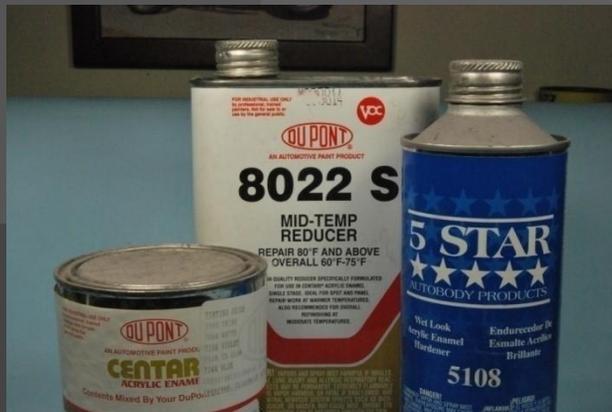


These lacquer primers have exceptionally fine pigments yielding ultra smooth surfaces and excellent adhesion for base coats. Both also function as a sealer to protect styrene from solvents.

# Thinners



# Paint Types



# Paint Types



# Clear Coat Types



These automotive lacquers contain more aggressive solvents than those used in hobby paints and may require a sealer to prevent crazing of styrene. They provide very hard clear coats.

# Clear Coat Types



These hobby lacquer clears typically do not cause crazing of styrene and dry hard enough to polish if needed

# Clear Coat

- It is recommended to match brand of clear coat to the base coat
  - HOK with HOK, Tamiya with Tamiya, etc.
  - Enamel with enamel, lacquer with lacquer, polyurethane with polyurethane, etc.
  - Using a clear coat from a different manufacturer with a different solvent system can result in incompatibilities
    - Crazing, lifting, checking, cracking, etc.

# Airbrushing Spray Paints



Remove paint from spray can using a straw to spray into a paint jar (this is not decanting; it is de-caning)

De-gas spray paint

20-30% of volume is dissolved propellant (propane or butane)



# Thinning Ratios (P:T)

- HOK/PPG/Bob Dahl solid colors (1:2 with MarHyde)
- HOK/PPG/Bob Dahl candy/clear (1:4 with MarHyde)
- Dupli-Color clear (1:2 with Dupli-Color)
- Bottle enamel or lacquer (1:2 with Dupli-Color)
- Testor's/MM spray enamel (1:1 with Dupli-Color)
- Testor's/MM spray lacquer (1:1 with Dupli-Color)
- Tamiya TS spray lacquer (1:1 with Dupli-Color)
- Dupont acrylic enamel (4:8:1(hardner))
- HOK sealer (KS10(4):Ru310(4):Ku150(1))

# Body Preparation

- Mold lines on plastic parts can be removed by scraping them with a fresh #11 Exacto blade followed by wet sanding with a 2400-grit polishing cloth or 2000-grit wet and dry sandpaper
- Wash parts with warm water and dish soap
- Air dry parts (or use a dehydrator at 115°F)
- Do necessary body work (filling ejection pin marks, customizing, etc.)
- Dry puttied parts in a dehydrator over night
- Wet sand putty areas and finish off with 2400-grit polishing cloth
- Wash and dry parts
- Apply primer

# Spray Can Tips

- Shake spray can for at least 2 minutes
- Place spray can into hot tap water for 2 minutes
- Re-shake can for 1-2 minutes
- Spray into paint booth or empty box to clear nozzle of dried paint
- Spray two wet coats onto parts from a distance of 6-8 inches starting and stopping spray off of the parts (10 minutes between coats)
- Dry parts in a dehydrator or dust free area

# Priming

- Apply two wet coats of primer with 10 minutes between coats
  - I use Tamiya White Fine Surface Primer
- Dry in a dehydrator at 115°F for at least 4 hours (or over night)
- Inspect parts for "dust bunnies" or flaws and remove them by wet sanding with a 4000-grit polishing cloth and/or re-filling with putty
- Wash, dry, and re-prime parts if necessary
- Apply a guide coat of flat black (dusted onto a lighter color primer)
- Block sand parts with a wet 4000-grit polishing cloth to show high and low spots
- Wash, dry, and re-prime parts

# Azteck Airbrush Settings

- Air tank maintained at 120-150psi
- Regulator w/moisture trap at 15-35psi
- Airbrush in single-action mode
- 1mm nozzle (yellow)

# Base Coats

- Apply two wet coats of base color (10 minutes between coats)
- Dry in a dehydrator for at least 4 hours
- Inspect the parts for dust bunnies or flaws
- Wet sand parts with a 4000-grit polishing cloth to remove any defects
- Wash and dry parts
- Apply another wet coat of base color if necessary
- Begin candy or clear coats

# Candy or Clear Coats

- Apply two wet coats of candy or clear with 10 minutes between coats
- Airbrush a wet coat of straight lacquer thinner over the last clear coat before it dries
- Dry in a dehydrator for 24 hours
- Inspect parts for "dust bunnies" and other flaws and remove them by wet sanding with a 4000-grit polishing cloth
- Wash and dry parts
- Apply another wet coat of candy or clear if necessary
- Dry in a dehydrator over night

# Multi-Color Paint Schemes

- Apply base color (the lightest of the colors)
- Allow paint to thoroughly dry
- Tape off lightest color
  - Bare Metal Foil or Tamiya Tape leaves a very slight step
- Apply a light coat of clear to seal the tape edges to prevent color creep
- Apply the next darkest color
- Carefully remove tape after 30 minutes
- Allow paint to thoroughly dry
- Repeat from step 3 for additional colors
- Wet sand the finished parts with a 4000-grit polishing cloth to knock down any steps between colors before applying decals or clear

# Multi-Color Paint Schemes



# Applying Decals

- Apply decals with a soft paint brush and plenty of water on a glossy surface
  - Sparingly use setting solutions
- Let decals air dry or use a dehydrator
- Gently wash model with warm soapy water to remove excess decal "glue"
- Rinse with clean warm water
- Let parts air dry or use a dehydrator
- Apply two wet coats of clear

# Polish and Final Clean

- Rub out paint using a clean cotton cloth (or clean piece of chamois) with Novus Plastic Polish #2 or Meguiar's Scratch X
- Wax using a clean cotton cloth and Meguiar's Cleaner Wax
- Final clean using a clean cotton cloth and either Novus Plastic Polish #1 or Kleenmaster Brillianizer

# Using Alclad II Chrome

- Remove kit chrome with Purple Power, bleach, or Easy Off
- Wet sand surfaces with a 4000-grit polishing cloth
- Wash parts with dish soap and warm water
- Air dry or dry parts in a dehydrator overnight
- Apply two wet coats of Tamiya White Fine Surface Primer
- Air dry or dry parts in a dehydrator overnight
- Airbrush one wet coat of Model Master Classic Black
- Let dry 5 minutes
- Airbrush a second wet coat of Model Master Classic Black
- Airbrush (at 15-20psi) a few (2-3) dust coats of Alclad II Chrome within 5 minutes of applying the last gloss black coat
- Air dry or dry parts in a dehydrator overnight
- Wear cotton gloves when handling Alclad II Chrome refinished parts to prevent fingerprint smudges or lifting

# Presentation Request/Questions

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