Guide to Painting TPO
- Solvay Engineered Polymers
- MYTEX POLYMERS
TPO Painting Guide as recommended by Solvay
Thermoplastic olefins (TPOs) can be painted using various methods. The information below is for general purpose painting. Each specific application needs to be reviewed to optimize the process and material selection. TPO materials usually require surface treatment prior to painting. However, some paint companies have developed paint systems that are capable of direct adhesion to TPOs

Paint Process Requirements
• Surface treatments, see treatment and suppliers below.
  ➢ Specialty primers or surface treatments can be applied directly to clean TPO surfaces. Cleaning methods vary from solvent wiping to power wash cleaning systems. Most paint systems can then be applied over the cleaned and treated parts using standard paint application methods.

• One coat paint systems
  ➢ Paints modified for direct adhesion to TPO can be applied to clean TPO surfaces.
  ➢ Suppliers of one coat TPO paint systems
    NB Coatings (800) 323-3224
    Red Spot (812) 428-9100
    Sherwin Williams (248) 588-3500
Types of Surface Treatments and Suppliers
Surface treatments available are specialty primers, Corona treatment and flame treatment. Suppliers are listed below.

• Chlorinated adhesion promoters or primers (Can be sprayed, rolled, or wiped on)
  - PPG (248) 641-2000
  - NB Coatings (800) 323-3224
  - Red Spot (812) 428-9100
  - Sherwin Williams (248) 588-3500

• Corona Treatment (Can be treated by hand or automatically)
  - Electro-Technic Products, Inc.: (773) 561-2349
  - Corotec Corporation: (860) 678-0038
  - PlasmaTreat: (905) 816-2350
  - Enercon Industries Corporation: (262) 255-6070

• Flame (Can be treated by hand or automated)
  - TS Automation, Inc.: (517) 545-8150
  - Enercon Industries Corporation: (262) 255-6070

Contacts for some of the Major Paint Companies
- AKZO (248) 451-6131
- BASF (248) 304-5700
- DuPont (248) 583-8000
- PPG (248) 641-200
- NB Coatings (800) 323-3224
- Red Spot (812) 428-9100
- Sherwin Williams (248) 588-3500
Step 1.

Saturate rag with 50% isopropyl alcohol solution or use a standard plastic pre-cleaner available at most suppliers of automotive refinish materials. **Wipe off with clean cotton rag before solution evaporates.**

The TPO part should be a relatively defect-free part – no scratches in excess of 320 grit. Defects should be hand sanded smooth before proceeding to the next step. The wipe-down process offers a good opportunity to detect defects before painting.
Step 2.
Using a gray 3M scuff pad (#7448 or equivalent), de-gloss entire area to be painted.

Step 3.
Clean TPO a second time with a rag saturated with 50% isopropyl alcohol solution or use a standard plastic pre-cleaner available at most suppliers of automotive refinish materials. **Wipe off with clean cotton rag before solution evaporates.**
Step 4.
Before applying primer, use a high quality tack cloth and gently tack entire area to be painted.

Do not excessively tack part as this will cause a build-up of static electricity.
Step 5.
Spray one wet coat of RWP7227 at 45 lb pressure over entire area to receive topcoat and let dry a minimum of 20 minutes. Dry mil thickness should be around 1 mil.

(70° F., 60% Relative Humidity)

For interior applications, items coated with RWP7227 can be directly topcoated. This eliminates Step 6 but should only be used for light duty interior applications.

If light sand scratches are a problem, apply RWP7227 at 3 mils wet film thickness.
Step 6.
Apply a two-component acrylic urethane sealer over the RWP7227 that can be obtained at most automotive refinish distributors.

If excessive sand scratches are a problem, an acrylic urethane primer surfacer could be used instead of the sealer if all sanding guidelines supplied in the product data sheet are followed after the surfacer is applied.

The sealer should be applied at manufacturer’s recommended film thicknesses and spray application. The re-coat of the sealer depends on the parameters of the product. Usually a 4 – 8 hour dry time is necessary unless a “wet-on-wet” application or force dry process is used.

Please consult your automotive paint distributor or surfacer tech data sheets to insure proper sealer application.
Step 7.
The topcoat that can be used over the acrylic urethane primers varies. For exterior automotive applications, it is recommended that a basecoat/clearcoat automotive refinish system be used. This should help insure the best color match possible to current OEM colors. For less critical color applications, a single stage, 2 component urethane topcoat could be used.

This photo shows the application of 2 – 3 coats of automotive refinish basecoat over the cured urethane sealer. Before applying basecoat over sealer, the applicator should tack entire area to be painted if a “wet-on-wet” process is not used.

Please follow the recommendations of your automotive refinish distributor or tech data sheets to help insure proper application of topcoats.
Step 8.

2-component urethane clear should be applied 20 – 30 minutes after final coat of basecoat has dried. Applicator should tack between basecoat and clearcoat and apply at least 2 coats of 2-component urethane clear at a final dry mil thickness reading of 2.5 mils.

If force dried heat is used in any part of the painting process, surface temperature should not exceed 140° F.
MYTEX POLYMERS

DynaFlow, DuraFlex, and MetaForm Grades

The following process outlines the major stages utilized by the automotive industry to paint TPO parts. It is intended to be a basic overview and is superceded by recommendations of your paint supplier.

1. **Powerwash Parts** (5 or more stages typical) – parts washed & dried approximately 20 minutes at 80°C
   - City water rinse
   - Wash
   - City water rinse
   - Deionized water re-circulated rinse
   - Virgin deionized rinse
   - Suppliers: Henkel, PPG, Dubois, Betts, etc.

2. **Adhesion Promoter** (or other pre-treat system – flame, corona, plasma) - Spray applied (non-electrostatic, electrostatic, hand, or robotic) films ~ 0.2 - 0.4 mils. Waterborne adhesion promoter needs to be baked prior to basecoat application (30 minutes @ ~80°C).
   - Solventborne or waterborne; formulated for TPO plastics, typically a chlorinated polyolefin.
   - Suppliers: PPG, Red Spot, Akzo, DuPont, Rohm and Haas, and others.

3. **Basecoat** (color coat) - Spray applied (non-electrostatic, electro-static, high-speed bells, hand, or robotic) films ~ 0.8 -1.6 mils depending on color.
   - Flexible 1 K or Flexible 2 K
   - Waterbase or solventbase
   - Suppliers: PPG, Red Spot, Akzo, DuPont, Rohm and Haas, BASF, and others.
DynaFlow, DuraFlex, and MetaForm Grades

4. **Clearcoat** - Spray applied (non-electrostatic, electro-static, high-speed bells, hand, or robotic) films ~ 1.6 -1.8 mils. Parts are then final baked (~20 - 40 minutes @ 80 - 125°C).
   - Flexible 1 Component ("K") or Flexible 2 Component ("2K")
   - Solventbase
   - Suppliers: PPG, Red Spot, Akzo, DuPont, Rohm and Haas, BASF, and others.

*NOTE: All painted parts must be supported with a wire or full metal fixture to safeguard against part warpage during bake cycle.*

**Major Paint Suppliers:**

- PPG (248) 641-2000
- Rohm and Haas (800) 323-3224
- Red Spot (734) 454-9200
- BASF (248) 304-5700
- DuPont (248) 583-8000
- Akzo Nobel (770) 662-8464

Note: Paint supplier will give detailed paint processing requirements.