

Safety Steps and Procedures To Follow Prior To Applying Sur-Prep® AP-1:

Always refer to the **technical data sheet (TDS)**, **safety data sheet (SDS)**, and **label** prior to applying **Sur-Prep® AP-1** if you have any questions about this product.

Always wear gloves, protective clothing, and protective eyewear to prevent **Sur-Prep® AP-1** from contacting the skin and eyes.

Make sure there is proper ventilation in the area where **Sur-Prep® AP-1** will be applied and wear a proper mask to prevent the inhalation of fumes from **Sur-Prep® AP-1**.

Make sure there are no sparks, open flames, or other combustion sources in the area where **Sur-Prep® AP-1** will be applied.

Have cloths, rags, and other appropriate wiping devices including spill containment vessels available to address any spills or overruns of the **Sur-Prep® AP-1** material that may occur.

Ensure that there is adequate lighting available to see where **Sur-Prep® AP-1** is being applied and inspect surfaces prior to applying **Sur-Prep® AP-1** for any signs of contamination or rework.

Sur-Prep® AP-1 Features and Benefits:

Sur-Prep® AP-1 is a specialized product that is a **paint adhesion promoter** that improves **adhesion of paint layers** and can often be used in place of **scuff sanding** between **paint coats**.

Purposes Of Applying Sur-Prep® AP-1:

Use **Sur-Prep® AP-1** to:

- *Reactivate **paint surfaces** for subsequent **paint coats** to be applied.
- *Help with the **adhesion of clear topcoats** and/or **clearcoats** to **graphic transfer films**.
- *Increase **adhesion** between **basecoat** and **clearcoat** coatings.
- *Enhance **paint adhesion** used for **stenciling applications**.
- *Replace **scuff sanding** between **paint coats**.
- *Test the integrity of the **basecoat** prior to application of the **clearcoat**. **Swirl marks** and other **base coat defects** are highlighted by the **Sur-Prep® AP-1** so that the repair of the **basecoat** can occur before the application of the **clearcoat**.

Protecting Surfaces Not To Be Coated With Sur-Prep® AP-1:

Mask the areas that will not be coated with **Sur-Prep® AP-1** as shown below.



General Application For Mixing and Applying Sur-Prep® AP-1 Two Part Kits:

1.) Mix Sur-Prep® AP-1 Part A and Part B.

- A.) Pour the **Part A** contents into the **Part B** container. If white particles form when **Part A** is added, discard the product and make a fresh mix.
- B.) Reseal the **Part B** container and shake for **1-10 minutes** for the pint kits and **5-10 minutes** on a **paint shaker** for the **1 gallon (3.8 Liter)** and **5 gallon (18.9 Liter)** kits.
- C.) There is no induction time for **Sur-Prep® AP-1**. The pot life of **Sur-Prep® AP-1** is **10 hours**. If white particles are noticed in **Sur-Prep® AP-1** after it was mixed, discard the product and make a fresh mix.
- D.) Keep the used container closed until it is ready.
- E.) **Sur-Prep® AP-1** should be applied when temperatures are between **65°F and 90°F (18°C and 32°C)** and at a **relative humidity** that is **below 70%**. See the diagram on **page 9** for the ideal **temperature** and **humidity window** for the application of **Sur-Prep® AP-1**.

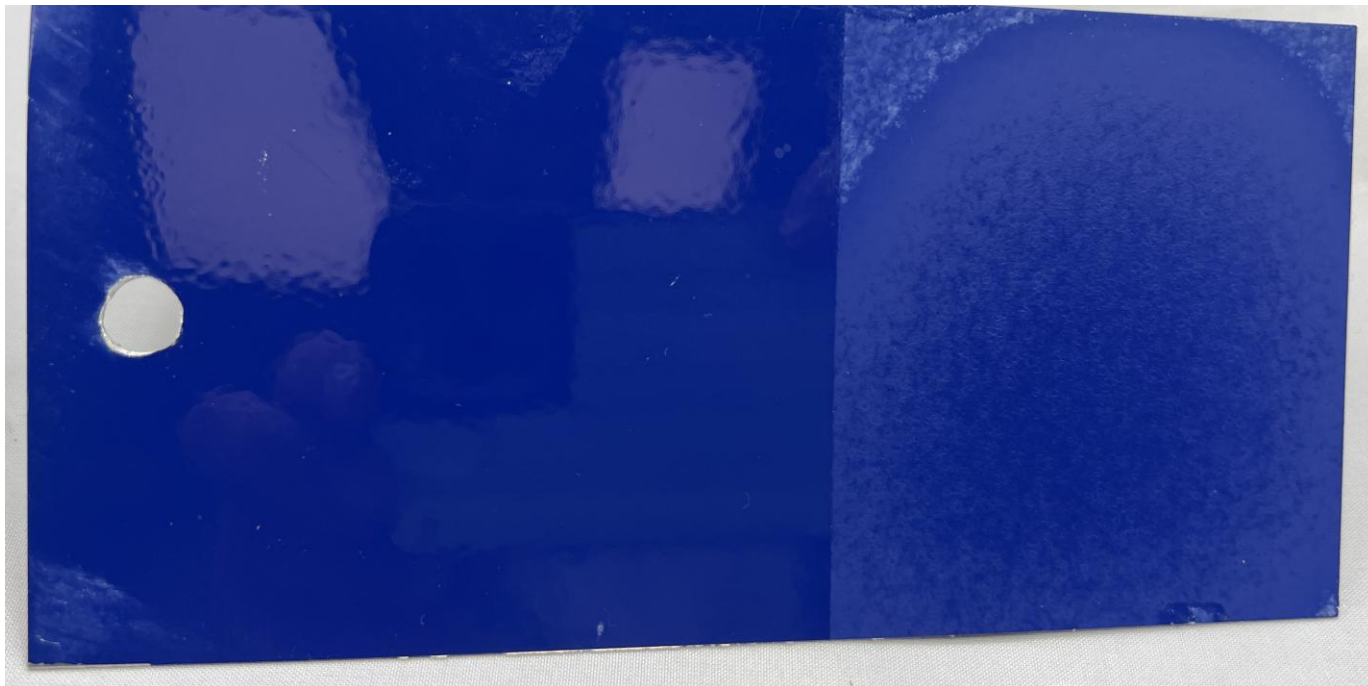
- 2.) Apply **Sur-Prep® AP-1** with **HVLP, air assisted, airless, or electrostatic paint gun** and make sure that it is applied as a **thin film** and that the surface appears **wet**. As the **Sur-Prep® AP-1** dries, the **60° surface gloss** will change from **90 to below 10** as shown in the image at the **bottom of this page** (The **right hand side** of the image shows the gloss and the **left hand side** shows the decreased gloss from the **dry Sur-Prep® AP-1**). This shows that **Sur-Prep® AP-1** was **properly** applied to that surface as the **wet surface** below on the left is **slightly translucent** where you can see a **slight reflection** on that substrate.

PROPER APPLICATION OF SUR-PREP® AP-1

The **proper application** of **Sur-Prep® AP-1** causes a **gloss change** as indicated by the **reflection** in this surface **below**.

Paint Without Sur-Prep® AP-1

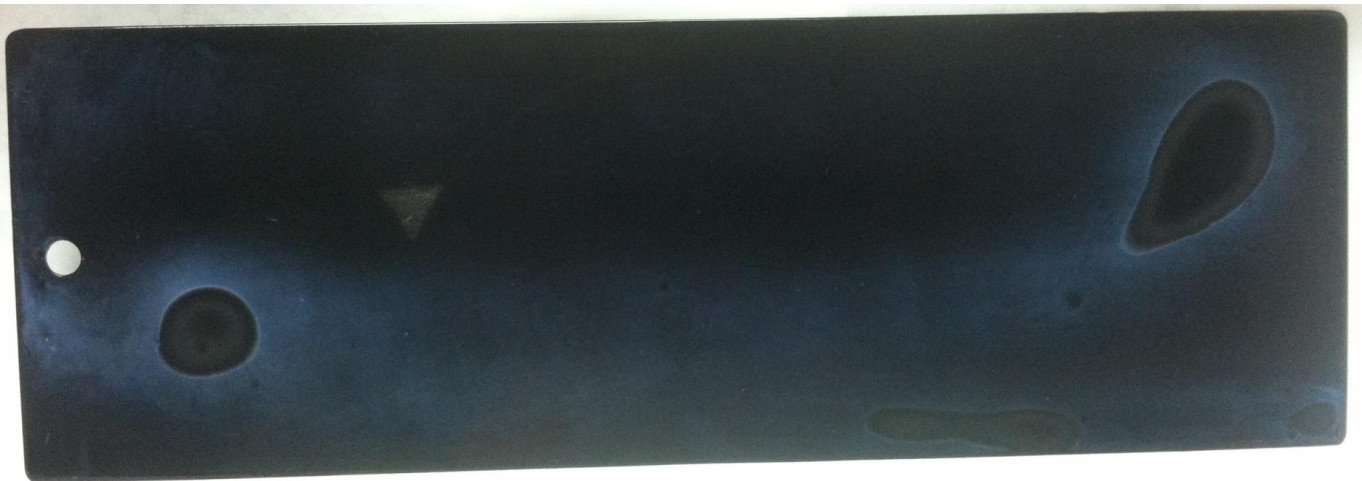
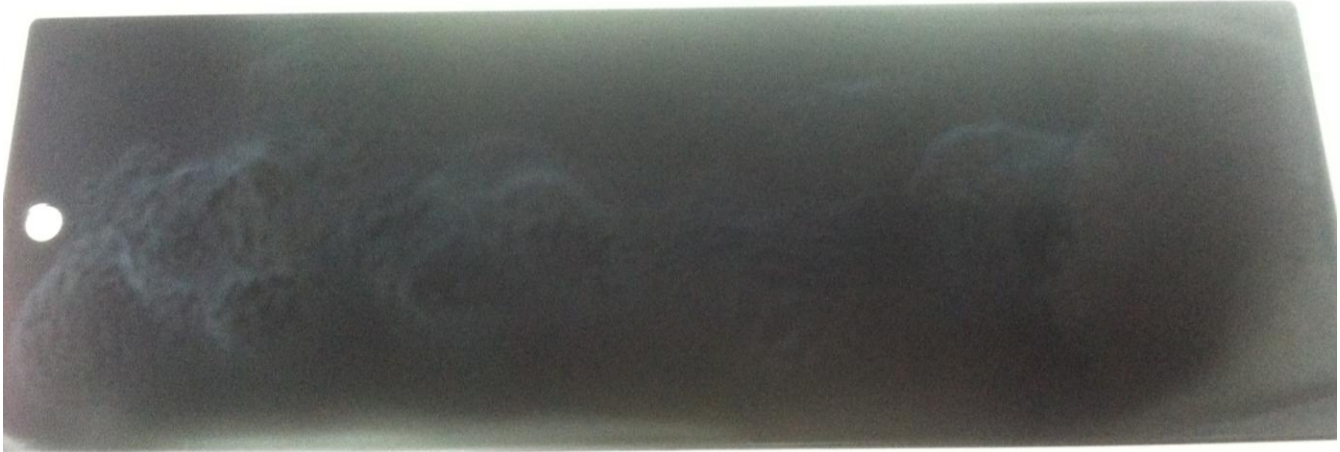
Paint With Sur-Prep® AP-1



General Application For Mixing and Applying Sur-Prep® AP-1 Two Part Kits (Continued From Page 2):

IMPROPER APPLICATION OF SUR-PREP® AP-1

Improper application of Sur-Prep® AP-1 will result in **cloudiness** and **white spots** on the panel as shown in the images below.



General Application For Mixing and Applying Sur-Prep® AP-1 Two Part Kits (Continued From Page 3):

Spray Applying Sur-Prep® AP-1

3.) HVLP Spray Gun Setup

- A.) Determine the tip size for the gun. The recommended tip size for the gun should be **1.0 mm to 1.5 mm**.
- B.) Set the **air pressure**. This is very important because **Sur-Prep® AP-1** is applied **thin** so **too much pressure** will result in a **dry spray** and texture of **Sur-Prep® AP-1** while **too little pressure** will result in a **poor atomization** and **orange peeling** of **Sur-Prep® AP-1**.
- C.) If you see texture in the spray of **Sur-Prep® AP-1**, then increase the **air pressure** of your **HVLP gun**. If you see an **overspray cloud** of **Sur-Prep® AP-1**, then decrease the **air pressure** slightly. The proper spray pattern for **Sur-Prep® AP-1** should be a **slightly wet pass** with **no flooding or sagging** because **thinly applied products** like **Sur-Prep® AP-1** can run very fast.
- D.) One pattern that should be used when using the **HVLP gun** to apply **Sur-Prep® AP-1** is the **fan pattern** because it uses a **full wide fan spray** which provides better consistency and leveling when applying **Sur-Prep® AP-1** with the **HVLP spray guns**.
- E.) The **air pressure** when the trigger is pulled for the gun should be **20–30 PSI** even though most guns specify **10 PSI** at the **air cap**.
- F.) Always set the pressure with the **trigger fully pulled** because the **pressure drops under flow**.
- G.) Close off the **air** and **fluid adjustment knobs**.
- H.) Slowly open the **air adjustment knob** with the **trigger pulled**.
- I.) Open the **fluid adjustment knob** slowly until you see a **fine mist** from the **air cap**.
- J.) Continue to fine tune the settings until the desired spray pattern is achieved.

HVLP Spray Gun



Airverter HVLP Spray Gun



4.) Air Assisted Spray Gun Setup

- A.) Determine the tip size for the gun. The recommended tip size for the gun should be **1.0 mm to 1.5 mm**.
- B.) For **pressure settings**, use the **lowest pressure** possible so that **Sur-Prep® AP-1** can be spray applied as a **clean fan** with the width of the spray being shaped like a **fan**.
- C.) Slowly increase the **pressure** to the gun until the **fan spray pattern** of **Sur-Prep® AP-1** is fully developed and even and there are no **fingers** or **tails** on the edges of the spray equipment. If you hear a **harsh hissing noise** or see **fogging** in the spraying of the **Sur-Prep® AP-1**, then the **pressure** of the **air assisted spray gun** is **too high**. None of these observations should occur because **thin materials** like **Sur-Prep® AP-1** atomize very easily.
- D.) Set the **pump ratio** of the equipment to a range of **20:1 to 30:1**.
- E.) Setup the following parts for the **airless spray equipment** below.
 - *Displacement Pump With A Positive Piston Type
 - *Stainless Steel Filter With A High Pressure With 200-300 mesh element

Air Assisted Spray Gun



General Application For Mixing and Applying Sur-Prep® AP-1 Two Part Kits (Continued From Page 4):

Air Assisted Spray Gun Setup (Continued From Page 4)

- F.) Maintain your distance of the gun from the surface as the distances between **air assisted spray guns** and other spray methods can vary. A good distance to follow for **air assisted spray guns** is about **12" or more**. If you spray apply **Sur-Prep® AP-1** at a distance closer than **12"**, then there will be a heavy buildup of **Sur-Prep® AP-1**, tiger stripping of material from the surface where the **Sur-Prep® AP-1** was applied, and a variation in the gloss of the **Sur-Prep® AP-1**.
- G.) Consider the passing speed of **Sur-Prep® AP-1** because the output of **Sur-Prep® AP-1** from **air assisted spray guns** can vary between other spray methods. Therefore, you may need to move faster or slower than other spray methods, such as **HVLP guns**.
- H.) The **Sur-Prep® AP-1** should be spray applied as a **smooth continual pass** with a **50% overlap**.

5.) Airless Spray Setup

- A.) Determine the tip size for the gun. The recommended tip size for the gun should be **1.0 mm to 1.5 mm**.
- B.) For **pressure settings**, use the **lowest pressure** possible so that **Sur-Prep® AP-1** can be spray applied as a **clean fan** with the width of the spray being shaped like a **fan**. The setup of **airless spray equipment** varies based on the size and type of gun that is being used but a good starting point for the **pressure** of the **airless spray gun** should be around **900-1200 PSI**.
- C.) Slowly increase the **pressure** to the gun until the **fan spray** pattern of **Sur-Prep® AP-1** is fully developed and even and there are no **fingers** or **tails** on the edges of the spray equipment. If you hear a **harsh hissing noise** or see **fogging** in the spraying of the **Sur-Prep® AP-1**, then the **pressure** of the **airless spray gun** is **too high**. None of these observations should occur because thin materials like **Sur-Prep® AP-1** atomize very easily.
- D.) Set the **pump ratio** of the equipment to a range of **20:1 to 30:1**.
- E.) Setup the following parts for the **airless spray equipment** below.
 - *Displacement Pump With A Positive Piston Type
 - *Stainless Steel Filter With A High Pressure With 200-300 mesh element
- F.) Maintain your distance of the gun from the surface as the distances between **airless spray guns** and other spray methods can vary. A good distance to follow for **airless spray guns** is about **12" or more**. If you spray apply **Sur-Prep® AP-1** at a distance closer than **12"**, then there will be a heavy buildup of **Sur-Prep® AP-1**, tiger stripping of material from the surface where the **Sur-Prep® AP-1** was applied, and a variation in the gloss of the **Sur-Prep® AP-1**.
- G.) Consider the passing speed of **Sur-Prep® AP-1** because the output of **Sur-Prep® AP-1** from **airless spray guns** can vary between other spray methods. Therefore, you may need to move faster or slower than other spray methods, such as **HVLP guns**.
- H.) The **Sur-Prep® AP-1** should be spray applied as a **smooth continual pass** with a **50% overlap**.



General Application For Mixing and Applying Sur-Prep® AP-1 Two Part Kits (Continued From Page 5):

6.) Electro-Static Spray Gun Setup

Electro-Static Spray Gun



- A.) Minimize the flow of **Sur-Prep® AP-1** for the required **coating speed** and **film thickness**.
- B.) Minimizing the target distance of spraying **Sur-Prep® AP-1**.
- C.) Ensure that the **Sur-Prep® AP-1** to be sprayed has a very high **resistivity** of at least **>1 mega-ohm**.
- D.) Attach charging unit to the gun and object to be sprayed with **Sur-Prep® AP-1**.
- E.) Gradually increase in-line **air pressure** so that the spray provides proper **Sur-Prep® AP-1** build at the required **coating speed** and ensure that the pressure does not exceed **100 psi**.
- F.) **Fluid pressure** is typically **400-800 psi** so make sure it is set to that **psi range**.
- G.) Turn on **charging unit** and begin spraying **Sur-Prep® AP-1**.

7.) Let the **Sur-Prep® AP-1** dry for at least **30 minutes**.

8.) Once applied, the surface coated with **Sur-Prep® AP-1** shall not be touched or disturbed prior to application of any **subsequent coating**.

9.) If any defects occur during application, runs or heavy application, **dry** the area with **compressed air**. Remove the dried powder using a solvent, such as MPK or 70/30 MPK/MEK mixture. A tack rag can also be used as well. Reapply a **thin wet film** of **Sur-Prep® AP-1**.

10.) Apply next **decorative paint coat** or **stencil paint** over the dried surface of **Sur-Prep® AP-1** within **24 hours**. If the **second coat of paint** is not applied over **Sur-Prep® AP-1** within **24 hours**, remove the dried **Sur-Prep® AP-1** using a solvent, such as MPK or 70/30 MPK/MEK mixture. A tack rag can also be used as well. Re-apply a **thin and wet film** of **Sur-Prep® AP-1**.

11.) Clean spray equipment with methyl propyl ketone (MPK) or 70/30 MPK/methyl ethyl ketone (MEK) mixture.



12.) Refer to the **temperature and humidity range graph** on **page 9** for applying **Sur-Prep® AP-1**.

Aerosol Application Steps of Sur-Prep® AP-1:

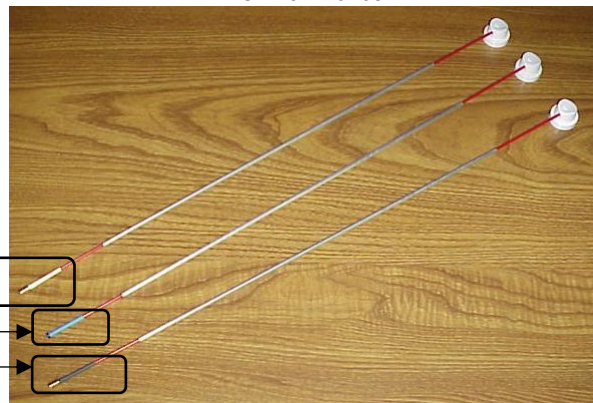
Use the following equipment to apply the **Sur-Prep® AP-1 Aerosol**.

*Aerosol (Spray Any Way) Can

***Formit®** Extension Wands-For use with all **Zip-Chem®** aerosols to reach difficult to access areas, such as stringer edges.

***Zip-Chem® Aerosol Trigger Sprayer**-For use with any **Zip-Chem®** aerosol can

Formit® Wands



*Formit® 360° Spray (White Tube) Wand

*Formit® Fan Spray Spray (Blue Tube) Wand

*Formit® 180° Spray (Black Tube) Wands

Zip-Chem® Aerosol Trigger Sprayer



Formit® 360° Spray Demonstration Video



Formit® Fan Spray Demonstration Video



Formit® 180° Spray Demonstration Video



Aerosol Application Steps of Sur-Prep® AP-1 (Continued From Page 7):

Aerosol Application Steps:

- 1.) Shake **Sur-Prep® AP-1** aerosol can for **10-15 seconds**.
- 2.) Apply a **thin film** of **Sur-Prep® AP-1**.
- 3.) As the **Sur-Prep® AP-1** dries, it will reduce the **60° surface gloss** from **90** to below **10** as shown below where there is a **reflection** in the substrate surface which indicates the gloss change.

Gloss Change As Indicated By Reflection In This Surface

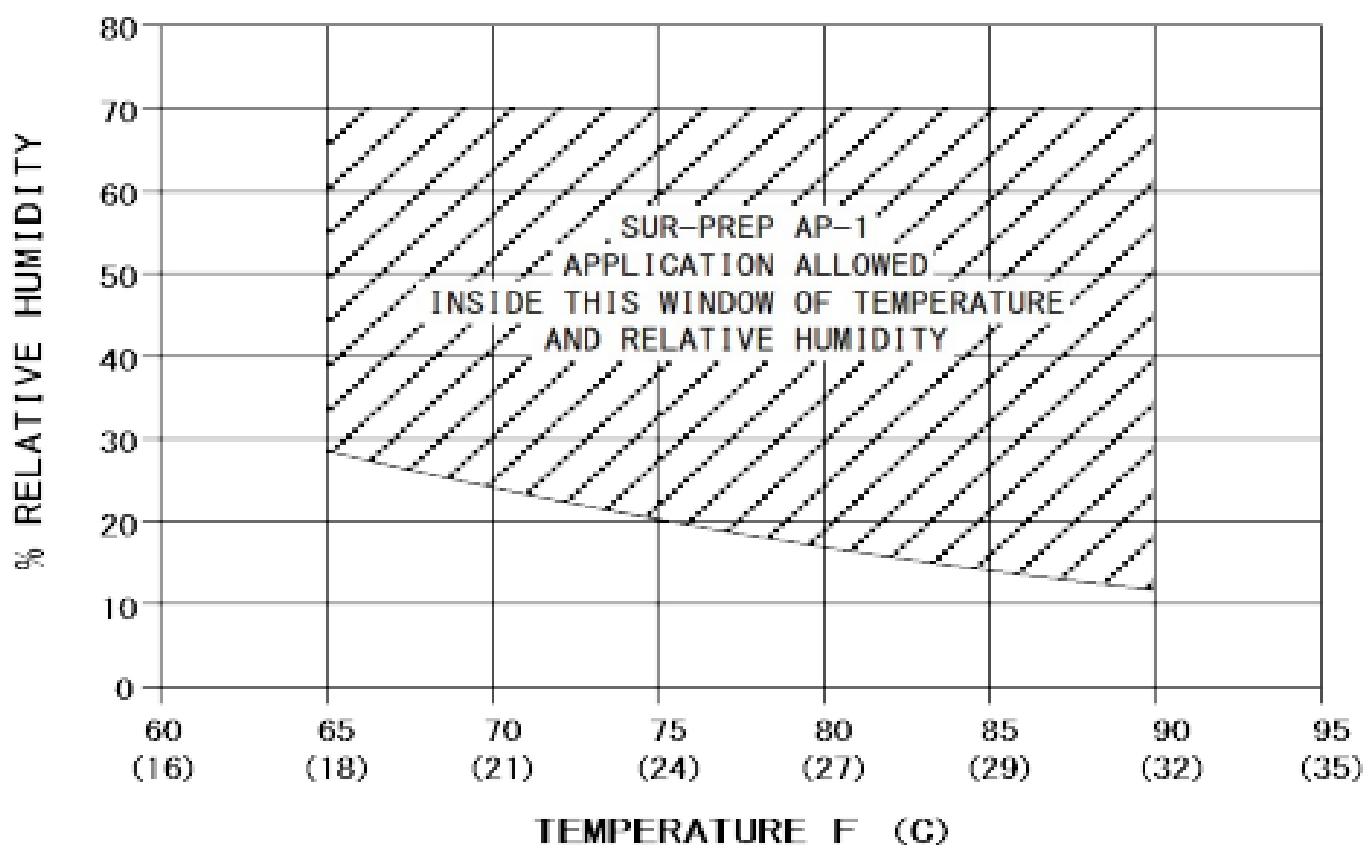
Panel Without Sur-Prep® AP-1

Panel With Sur-Prep® AP-1



- 4.) Allow **Sur-Prep® AP-1** film to **dry 30 minutes** for **large area** and **15 minutes** for **stencil use**. If any defects occur during application, runs or heavy application, **dry** the area with **com**. Remove the dried powder using a solvent, such as MPK or 70/30 MPK/MEK mixture. A tack rag can also be used as well. Reapply a **thin wet film** of **Sur-Prep® AP-1**.
- 5.) Apply next **decorative paint coat** or **stencil paint** within **24 hours**.

Temperature and Humidity Range Graph For Applying Sur-Prep® AP-1:



NOTE: THE TEMPERATURE AND HUMIDITY RANGES SHOWN ARE THE LIMITS FOR APPLICATION TO ASSURE OVERCOAT TOPCOAT ADHESION. THESE LIMITS DO NOT TAKE INTO ACCOUNT EQUIPMENT CONTROL TOLERANCES. DEPENDING ON EQUIPMENT SET POINT ACCURACY, IT MAY BE NECESSARY TO SET CONTROL LIMITS INSIDE THE LIMITS SHOWN IN THIS FIGURE.

Paints Tested With Sur-Prep® AP-1:

For information on **paints** that were tested with **Sur-Prep® AP-1**, refer to the **Sur-Prep® AP-1 TDS** and the following **webpage** below, which can also be found on the **Sur-Prep® AP-1 webpage**.

<https://zipchem.com/application-conditions-for-applying-sur-prep-ap-1-to-conventional-paint-systems-and-notes-about-conventional-paint-systems/>

Sur-Prep® AP-1 Product Pictures, Zip-Chem® Product Packaging Part Numbers, and Other Materials To Purchase:

Sur-Prep® AP-1

- *Case of 24 of 4 fl oz (118 mL) Aerosols-**100767**
- *Case of 12 of 16 fl oz (473 mL) Aerosols-**011671**
- *Case of 12 each Pint (473 mL) Kits-**100264**
- *Case of 2 each 1 Gallon (3.8 Liter) Kits-**100265**

Formit® Wands (12 Assemblies Per Package)

- *Formit®-18-Fan-006224
- *Formit®-18-180-006226
- *Formit®-18-360-006227
- *Formit®-18-STD-FOG-008352
- *Formit®-18-90-FOG-008353
- *Formit®-29-360-101321
- *Formit®-36-360-009131
- *Formit®-48-360 with metal sleeve-**009132**
- *Formit®-48-360 without metal sleeve-**100424**
- *Formit® Sample Pack (3 each of Formit®-18-Fan, Formit®-18-180, Formit®-18-360, Formit®-18-STD-FOG-100107)

Zip-Chem® Aerosol Trigger Sprayer

*010040

Sur-Prep® AP-1 NSN's: 8010-01-646-1109 (Pint (473 mL) Kit)

8010-01-600-1533 (4 fl oz (118 mL) Aerosol)

Methyl Propyl Ketone (MPK) solvent or 70/30 Mixture (MPK/MEK)

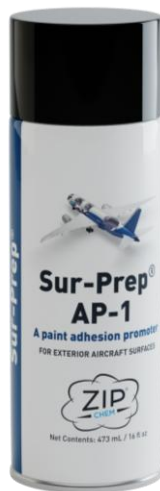
Wiping Devices (Absorbent non-woven wiper, AMS 3819 or equivalent, C-60 epoxy coated tack rag or equivalent, ect)

Spill Containment Vessels | Suitable Mask | Ventilation Equipment

Gloves | Protective Eyewear | Spray Equipment | Lighting Equipment

Protective Clothing | Masking Tape

Formit® NSN's: 4730-01-612-9914, 4730-01-661-8773 (Formit®-18-Fan);
6850-01-492-2942 (Formit®-18-360);
4730-01-632-0156 (Formit®-18-STD-FOG);
1560-01-658-8943 (with metal sleeve) (Formit®-48-360);
4730-01-659-5461 (without metal sleeve) (Formit®-48-360);
4730-01-632-0157 (Formit®-48-Fan)



← NSN: 8010-01-600-2254, 6850-01-719-2762
(16 fl oz (473 mL) Aerosol)

For application questions regarding **Sur-Prep® AP-1**, contact **Zip-Chem® Aviation Products** at (1) 408 782 2335 or zipchem@addevmaterials.com.