Sur-Prep® AP-1 Instruction Manual

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

Always refer to the technical data sheet (TDS) and safety data sheet (SDS) 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 respirating devices to prevent the inhalation of fumes from **Sur-Prep® AP-1** especially if the ventilation in the area where **Sur-Prep® AP-1** will be applied is insufficient.

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

Sur-Prep® AP-1 Features and Benefits:

Sur-Prep® AP-1 is a specialized coating 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 coats to be applied.
*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.
*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 to topcoats.
*Replace scuff sanding between paint coats.

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

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

2.) 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%.**

Sur-Prep® AP-1 Instruction Manual

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

3.) 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 damp. As **Sur-Prep® AP-1** dries, the gloss on the paint surface will change from a 60˚ surface gloss to a surface gloss below **10˚**. See the diagram on **page 7** for the ideal temperature and humidity window for application.

4.) HVLP Spray Gun Setup

HVLP Spray Gun

A.) 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**.

B.) 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.

C.) 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.

D.) 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.

E.) Always set the pressure with the trigger fully pulled because the pressure drops under flow.

F.) Close off the air and fluid adjustment knobs.

G.) Slowly open the air adjustment knob with the trigger pulled.

H.) Open the fluid adjustment knob slowly until you see a fine mist from the air cap.

I.) Continue to fine tune the settings until the desired spray pattern is achieved.

5.) Air Assisted Spray Gun Setup

Airverter Spray Gun

A.) Determine the tip size for the gun. This is very important especially for a thin material, such as **Sur-Prep® AP-1** including thin coatings, such as clears and sealers.

Note: Do not increase the gun tip size especially to **.015 " or more** when applying **Sur-Prep® AP-1** because the applied material will exhibit the following characteristics below.

*Too much **Sur-Prep® AP-1** being applied
***Sur-Prep® AP-1** runs
*Orange peel in the **Sur-Prep® AP-1**
*An overspray cloud in the applied **Sur-Prep® AP-1**

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**.

Sur-Prep® AP-1 Instruction Manual

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

Air Assisted Spray Gun Setup (Continued From Page 2)

C.) Slowly increase the pressure of 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 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 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 the 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**.

I.) The table below lists some differences between the HVLP spray method and the air assisted spray gun methods.

HVLP	Air Assisted Spray Gun
Soft spray of **Sur-Prep® AP-1**	More aggressive fan spray of **Sur-Prep® AP-1**
Slow **Sur-Prep® AP-1** output	Fast output of **Sur-Prep® AP-1**
Very forgiving when applying **Sur-Prep® AP-1**	**Sur-Prep® AP-1** can run quickly
Less overspray bounce of **Sur-Prep® AP-1**	More fogging potential for **Sur-Prep® AP-1** than with HVLP spray method

6.) Airless Spray Setup

Airless Spray Equipment

A.) Determine the tip size for the gun. This is very important especially for a thin material, such as **Sur-Prep® AP-1** including thin coatings, such as clears and sealers.

Note: Do not increase the gun tip size especially to **.015 " or more** when applying **Sur-Prep® AP-1** because the applied material will exhibit the following characteristics below.
*Too much **Sur-Prep® AP-1** being applied
***Sur-Prep® AP-1** runs
*Orange peel in the **Sur-Prep® AP-1**
*An overspray cloud in the applied **Sur-Prep® AP-1**

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**.

Sur-Prep® AP-1 Instruction Manual

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

Airless Spray Setup (Continued From Page 3)

C.) Slowly increase the pressure of 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 the 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**.

I.) The table below lists some differences between the HVLP spray method and the airless spray gun methods.

HVLP	Airless Spray Gun
Soft spray of **Sur-Prep® AP-1**	More aggressive fan spray of **Sur-Prep® AP-1**
Slow **Sur-Prep® AP-1** output	Fast output of **Sur-Prep® AP-1**
Very forgiving when applying **Sur-Prep® AP-1**	**Sur-Prep® AP-1** can run quickly
Less overspray bounce of **Sur-Prep® AP-1**	More fogging potential for **Sur-Prep® AP-1** than with HVLP spray method

7.) 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** .

Sur-Prep® AP-1 Instruction Manual

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

It is important to ensure that the HVLP, air assisted, airless, or electrostatic paint gun for applying **Sur-Prep® AP-1** are properly setup for the following reasons below.

*Decrease odor, fogging, and mist from the application of **Sur-Prep® AP-1**
*Increase the transfer efficiency of the **Sur-Prep® AP-1** from the equipment to the area it needs to be applied to
*Ensure that **Sur-Prep® AP-1** will be applied according to how it was designed to be applied with respect to optimum weight to performance balance

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

9.) Apply next decorative paint coat or stencil paint over the dried surface of **Sur-Prep® AP-1** within **24 hours**.

10.) 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**. If the second coat of paint is not applied over **Sur-Prep® AP-1** within **24 hours**, 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. Re-apply a thin and wet film of **Sur-Prep® AP-1**. Once applied, the surface coated with **Sur-Prep® AP-1** shall not be touched or disturbed prior to application of any subsequent coating.

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

12.) If there is over application (the film is white rather than just a gloss change), excessive runs, or wet areas, use clean and compressed air to dry the defective area.

13.) Use an absorbent non-woven wiper (which meets AMS 3819 or equivalent) and wet the wiper with methyl propyl ketone (MPK), solvent ketone (MPK) or a 70/30 mixture by volume of MPK solvent and methyl ethyl ketone (MEK) solvent.

14.) Re-apply **Sur-Prep® AP-1**

Sur-Prep® AP-1 Being Applied To Aircraft Surface

Spray Applying **Sur-Prep® AP-1**

15.) 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**. If the second coat of paint is not applied over **Sur-Prep® AP-1** within **24 hours**, 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. Re-apply a thin and wet film of **Sur-Prep® AP-1**.

16.) Remove **Sur-Prep® AP-1** with an absorbent non-woven wiper (which meets AMS 3819 or equivalent) and wet the wiper with methyl propyl ketone (MPK) solvent keton (MPK) or a 70/30 mixture by volume of MPK solvent and methyl ethyl ketone (MEK) solvent. Other products that can be used include a Scotch-Brite 7447 pad and a Scotch-Brite Clean and Finish (very fine, aluminum oxide).

Sur-Prep® AP-1 Instruction Manual

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

17.) Immediately wipe the surface dry with a clean and dry absorbent non-woven wiper (which meets AMS 3819 or equivalent) wiper and make sure the solvent does not dry on the surface as shown on the next page.

18.) Refer to the **temperature and humidity range graph** on **page 7** for applying **Sur-Prep® AP-1**.

Spray Applying Sur-Prep® AP-1 And Aerosol Application Steps:

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

*Spray Equipment (High Volume/Low Pressure (HVLP) Paint Sprayer Gun (High Volume/Low Pressure (HVLP) Sprayer for Paint high volume version), Air Assisted Airless Spray Gun, Electrostatic spray equipment)

*Aerosol (Spray Any Way)

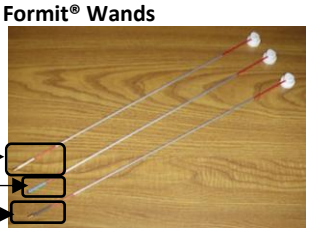
***Formit®** Extension Wands-For use with all **Zip-Chem®** aerosols to reach difficult to access areas, such as stringer edges.

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

*Bulk Application Equipment

Zip-Chem® Aerosol Trigger Sprayer

Formit® Wands



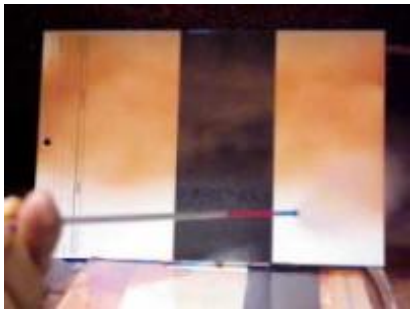
***Formit®** 360˚ Spray (White Tube) Wand

***Formit®** Fan Spray Spray (Blue Tube) Wand

***Formit®** 180˚ Spray (Black Tube) Wands

Formit® 360˚ Spray Demonstration Video

Formit® Fan Spray Demonstration Video



Formit® 180˚ Spray Demonstration Video

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** .

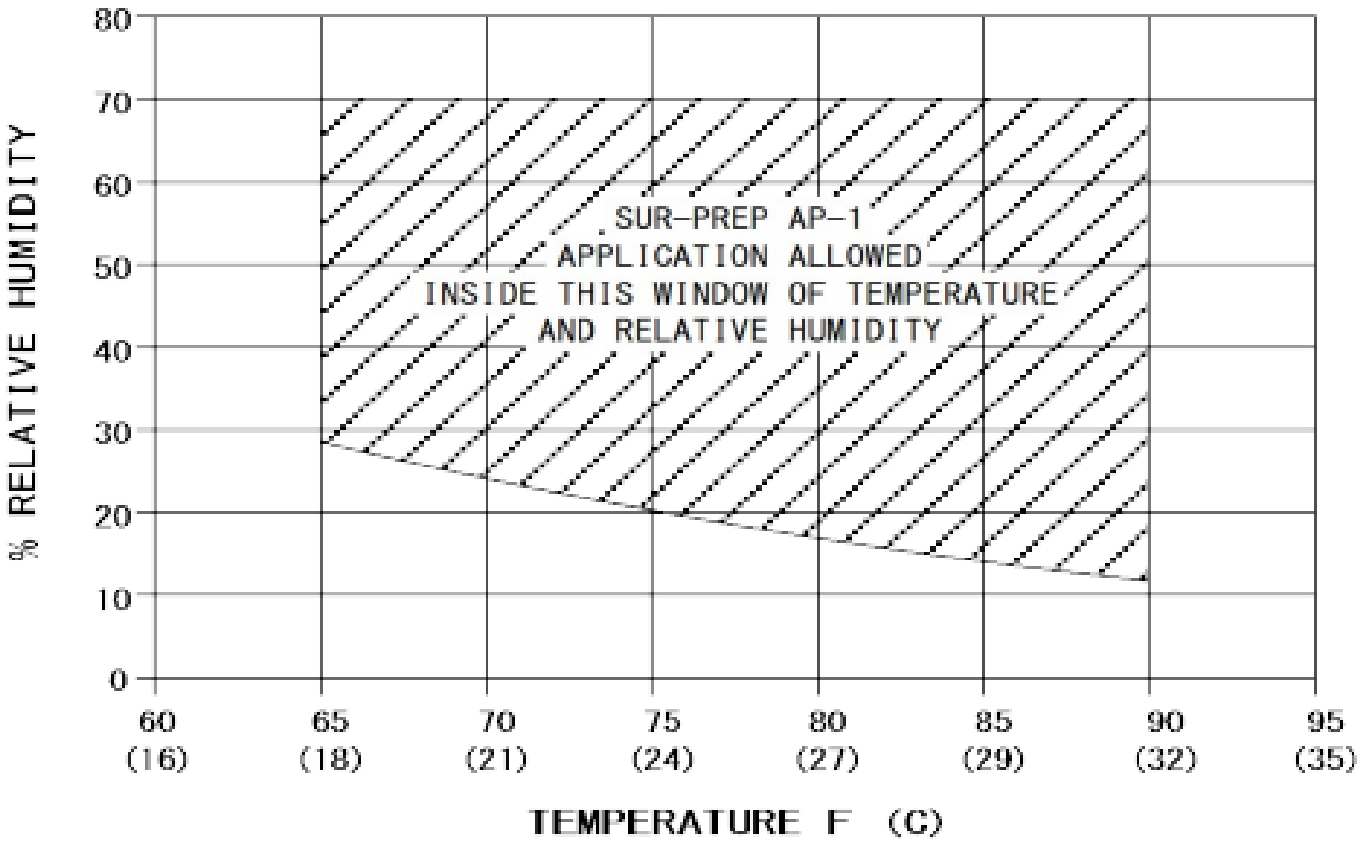
3.) As the **Sur-Prep® AP-1** dries, the gloss on the painted surface will change. It will change the 60˚ surface gloss from **90** to below **10**.

4.) Allow **Sur-Prep® AP-1** film to dry **30 minutes** for large area and **15 minutes** for stencil use.

5.) Apply next decorative paint coat or stencil paint within **24 hours**.

Sur-Prep® AP-1 Instruction Manual

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.

Sur-Prep® AP-1 Instruction Manual

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**)

Masking Tape | Absorbent non-woven wiper (AMS 3819 or equivalent)

Methyl Propyl Ketone (MPK) solvent or 70/30 Mixture | Protective Clothing

C-60 epoxy coated tack rag or equivalent | Gloves | Protective Eyewear

Spray Equipment (HVLP Spray Gun, Electrostatic Spray Guns, Air Assisted Airless Spray Gun, ect)

Respiratory Devices | Ventilation Equipment | Bulk Application Equipment

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**)

Zip-Chem® Aerosol Trigger Sprayer
***010040**

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

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

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

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

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