



CHROME FX INDUSTRIAL SYSTEM APPLICATION GUIDE

Thank you for your inquiry into the ChromeFX Spray "chrome" System, the Environmentally safe, decorative alternative to traditional plating. This revolutionary System was developed and perfected in Europe over the last 10 years and today it is being used in the Automotive / Motorcycle after-market, Decorative and numerous other industries.

With ChromeFX, you can "chrome" plastics or large objects that were never possible with traditional chroming. Plus, ChromeFX can mimic the look of numerous metals and finishes - from chrome to brass and smooth to brushed. All spray applied without dangerous chemicals or toxic metals.

Now, Alsa Refinish LLC is introducing the perfected ChromeFX System in the US with complete Service and Support. Alsa's experienced staff, technical center and affiliates can help you with all aspects of using this exciting technology. Alsa Corporation can provide:

- ChromeFX coatings, equipment and training so you can use your existing painting facilities to "chrome" products at your facilities.
- ChromeFX application on your product for prototyping.
- Complete outsourcing of ChromeFX coated parts in the NADTA region or China.

Let us help you incorporate our ChromeFX System into your business. If you would like to obtain free sprayed out sample of the finished product please feel free to contact us and we will be glad to send them immediately.

Enclosed are Technical Data Sheets and Price Lists for the ChromeFX system.

ChromeFX Technical Data Sheet

Summary:

- High durability system that gives a mirror like surface to regular and expanded plastics, metal, wood, glass or ceramics.
- Duplicates the look of chrome, brass, silver, or other metals
- Available in any color
- Effects include antiquing and brushed metal (matte)
- Successful in production line processes.
- Environmentally friendly – no toxic metals
- Can be use on semi-rigid substrates where chrome fails.
- Can be used on any size object from cell phones to 20 ft. Styrofoam stage props

Description:

The ChromeFX is a highly durable spray applied three-layer system for plastic, metal, or wood. Use the ChromeFX System where conventional plating technologies are unsuitable due to cost, size, design, substrate or environmental issues. This system is currently used in job shop and production line applications.

HOW IT WORKS: Three layers of proprietary paint products are used. These are:

1. **Basecoat** – A 2 component coating that creates a smooth surface that is reactive to the intermediate coat. Works as a primer on many surfaces. Not needed for glass and ceramic.
2. **ChromeFX intermediate coat** – A multi-step process that creates a continuous reflective film. The specific steps are: 1. Activator, 2. De-ionized Water Wash, 3. ChromeFX coat, 4. De-ionized Water Wash, 5. Compressed Air Blow Off.
3. **Topcoat** – Protective 2 component automotive grade tintable clear topcoat. Gloss can be varied from chrome-like high gloss to brushed metal matte.

Properties of Coated Surface

Technical Property	Performance
Gloss at 60° Angle	5° to 80°
Impact Resistance	Excellent
Adhesion	Excellent
Humidity Resistance	Excellent
Salt Spray Resistance	Excellent
Chemical Resistance	Very Good
Abrasion Resistance	Excellent
Temperature and Humidity Cycling	Pass
Mar Resistance	Very Good
Distinctness of Image (doi)	Mirror Like

Application Data Summary

Layer	Application	Dry Film Thickness	Air Dry at 77° F	Force Dry (Plastics) (Metal, Ceramic and glass can use higher temperatures)	Pot Life
Basecoat	Standard Spray	0.8 to 1.0 ML	24-48 hrs.	2-3hrs at 140°F	4 hrs.
ChromeFX	Special Kit/Process	0.1ML	1 hour	10 min. at 140°F	N/A
Topcoat	Standard Spray	0.8 to 1.0 ML	12-24 hrs.	2hrs at 140°F	4 hrs.



ChromeFX Basecoat Technical Data Sheets

Description:

The ChromeFX **Basecoat (CFX-BC)** is a solvent based, 2-component spray applied coating that forms a smooth reactive base for the ChromeFX Intermediate "chrome" layer. It can be used without additional primer on most non-porous surfaces.

Product Data

Pigment / Binder: Acrylic resin

Solvents: Aromatic hydrocarbons

Fire Hazard: Flammable

Flash point: 27° C or 80°F

Coverage: 400 sq. ft. / gallon at 1 mil

Substrates: Plastic or metal

Color: Clear

Shelf Life: 1 Year Unopened

Pot Life: 4 Hours at ambient conditions.

Application

Cleaning: All parts must be chemically or mechanically cleaned, film free, by a recognized cleaning specification.

Pre-treatment:

Plastics: Use adhesion promoter recommended by substrate manufacturer to improve adhesion.

Porous Surfaces: Apply a primer/sealer.

Hardener ChromeFX Basecoat Hardener (CFX-H)

Mixing ratio: (4:1) Basecoat: Hardener:

Application Methods: Conventional or HVLP spray

Recommended dry film thickness: 1.0 mil

DO NOT TOUCH PART AFTER PRODUCT APPLICATION. Hand oils cause defects in intermediate coat.

Drying

Air Dry: 24-48 hours at 77° F

Forced Drying: 2-3 hours at 140°F. Metals and high temperature plastics can use higher temperatures.

Storage

Store at ambient conditions and away from open flame.

Safety Precautions

Wear personal protective gear to eliminate chemical exposure risks to eye, skin and respiratory system.

Please refer to the Material Safety Data Sheet.



ChromeFX Intermediate Coat Technical Data Sheet

Description:

The ChromeFX **Intermediate coat** is a series of water borne steps that result in a mirror like coating on properly prepared surfaces. It can be applied directly to ceramic and glass. The ChromeFX Basecoat must be used on all other surfaces. The intermediate coat must be protected by the ChromeFX Topcoat.

Product Data:

Product	"C" Concentrate CFX-C	"A" Concentrate CFX-A	"B" Concentrate CFX-B	De-Ionized Water
Solvents	Water	Water	Water	Water
Fire Hazard	None	None	None	None
Color	Clear	Clear	Clear	Clear
Shelf Life	1 Year	1 Year	1 Year	N/A
Pot Life	24hrs.	24hrs.	24hrs.	N/A

ALL STORAGE at 65-68° F (18-20°C) in a dark room

Mixing:

Activator

1. **Wear personal protective gear to eliminate chemical exposure risks to eyes, skin and respiratory system.**
 2. **Do mixing in ventilated area or wear respirator.**
 3. **Mix only what you need for one day. Mixed product deteriorates after one day. Refrigeration will not slow deterioration.**
 4. Measure out amount of distilled or de-ionized water needed for day's activities. Water should be 65°-75° F. Ideal temperature is between 72° - 75° F.
 5. Using a funnel, carefully add (3oz. or 90 ml.) of ChromeFX Activator for every gallon (of distilled or deionized water).
 6. Replace cap tightly on ChromeFX Activator container.
 7. Use a funnel to carefully add mixture to container marked "Activator" in the ChromeFX System.
 8. Apply using ChromeFX System according to directions.
- Wear eye, skin and respiratory protection during application.**

Part B (CFX-B)

1. **Wear personal protective gear to eliminate chemical exposure risks to eyes, skin and respiratory system.**
 2. **Do mixing in ventilated area or wear respirator.**
 3. **Mix only what you need for one day. Mixed product deteriorates after one day. Refrigeration will slow deterioration.**
 4. Measure out amount of distilled or de-ionized water needed for day's activities. Water should be 65° - 75° F. Ideal temperature is between 72° - 75° F.
 6. Using a funnel, add 3oz. or 90 ml of (B) chemical for every gallon of water
- Do not add concentrates to each other as violent reaction will result.**
7. Use a funnel to carefully add to container marked "B" in the ChromeFX System.
 8. Apply using ChromeFX System according to directions. **Wear eye, skin and respiratory protection during application.**

ChromeFX Intermediate Coat Technical Data Sheet

Part A (CFX-A)

Wear personal protective gear to eliminate chemical exposure risks to eyes, skin and respiratory system.

2. Do mixing in ventilated area or wear respirator.

3. Mix only what you need for one day. Mixed product deteriorates after one day. Refrigeration will slow deterioration.

4. Measure out amount of distilled or de-ionized water needed for day's activities. Water should be 65° - 75° F. Ideal temperature is between 72° - 75° F.

5. Using a funnel, carefully add 1.5oz. or 45 ml. of (A) for every gallon of distilled or de-ionized water.

6. Replace cap tightly on (A) container.

7. Use a funnel to carefully add to container marked "AB" in the ChromeFX System.

8. Apply using ChromeFX System according to directions. **Wear eye, skin and respiratory protection during application.**

Filling ChromeFX System:

Wear personal protective gear to eliminate chemical exposure risks to eye and skin.

Do filling in ventilated area or wear respirator.

Use only Distilled or De-ionized Water in water container and for final rinsing.

1. Use a funnel to carefully add products to appropriate container (C, B, A, Water) in the ChromeFX System.

Fill no higher than shoulder of container.

2. Clean funnel with distilled or de-ionized water and dry between steps.

ChromeFX System Start-up:

1. Setup System according to instructions and make sure all connections are air and liquid tight.

2. Connect air supply and turn on pressure.

3. Set gauges to 10 PSI on the tanks and 40-50 PSI on the guns. (Note you may wish to increase the air pressure to the blow gun).

Spray Gun Adjustment:

Wear respirator and personal protective gear to eliminate chemical exposure risks.

Use a catch basin to collect wastewater runoff and treat according to directions.

1. Single Component Guns:

a. Clean and degrease guns before 1st use.

b. Adjust to attain an even spray fan.

2. Dual Component ("A" and "B") Gun:

a. Clean and degrease gun before 1st use

b. Fill with distilled or de-ionized water for adjustment.

c. Walther Pilot Gun:

I. Use a straight edge when adjusting liquid supply to make sure that the two liquid supply knobs are even so that equal amounts of "A" and "B" are applied.

II. Adjust to a fine spray that will evenly wet surface without excess runoff by adjusting 2 liquid supply knobs and air supply knob.

III. Test with distilled or de-ionized water to make sure that equal amounts of "A" and "B" are being used. Uneven application will cause discoloration.

IV. Adjust and re-measure until flow is equal.



ChromeFX Intermediate Coat Technical Data Sheet

Application:

Wear respirator and personal protective gear to eliminate chemical exposure risks.

Use a catch basin to collect wastewater runoff and treat according to directions.

Items to be sprayed must have ChromeFX Basecoat or be glass or ceramic.

1. Clean glass or ceramic to remove dirt and hand oils. Do not clean or touch Basecoated objects with bare hands.
2. Apply activator evenly to surface of object. If desired, Activator can be applied by dipping.
3. Rinse with distilled or de-ionized water.
- 4 Working from bottom to top, apply the chrome ("A" and "B") to object until a uniform ChromeFX coating appears.
5. Rinse thoroughly with distilled or de-ionized water.
6. Blow off water with compressed air.
7. Object is ready to top coat as soon as dry. Object can be placed in oven at 50°C (130°F) to aid drying.

DO NOT TOUCH PART AFTER PRODUCT APPLICATION. Hand oils cause defects in topcoat coat.

Storage:

Store at ambient conditions.

Safety Precautions:

Wear personal protective gear to eliminate chemical exposure risks to eye, skin and respiratory system.

Please refer to the Material Safety Data Sheet for other safety precautions.



ChromeFX Topcoat Technical Data Sheets

Description:

The ChromeFX **Topcoat (CFX-TC)** is a solvent based, 2-component spray applied coating that forms a clear protective finish. It is highly durable and resistant to most chemicals.

Product Data:

Pigment / Binder: Acrylic resin

Solvents: Aromatic hydrocarbons

Fire Hazard: Flammable

Flash point: 25°C or 77°F

Coverage: 400 sq. Ft/ gallon @ 1 mil

Substrates: ChromeFX Intermediate Coat

Color: Clear

Shelf Life: 1 Year Unopened

Pot Life: 4 Hours at ambient conditions.

Tinting:

Product can be tinted to almost any color using ChromeFX transparent pigments.

Pigments are available in: Apple Red, Orange, Lemon Yellow, True Gold, Grass Green, Forest Green, Turquoise, Cobalt Blue, Purple, Brown, Black and more.

Gloss:

Gloss as supplied is 80 on a 60° degree gloss meter. Product gloss can be adjusted with a ChromeFX Flattening Agent.

Application:

Cleaning: All parts should be dry. DO NOT TOUCH PARTS WITH BARE HANDS.

Pre-treatment: None

Hardener: ChromeFX Topcoat Hardener (CFX-H)

Mixing ratio: (4:1) Topcoat: Hardener

Application Methods: Conventional or HVLP spray

Recommended dry film thickness: 1.0 mil

Drying:

Air Dry: 12-24 hours at room temperature.

Forced Drying: 1 hour at 50°C (130°F). Metals and high temperature plastics can use higher temperatures.

Storage:

Store at ambient conditions and away from open flame.

Safety Precautions:

Wear personal protective gear to eliminate chemical exposure risks to eye, skin and respiratory system.

Please refer to the Material Safety Data Sheet.



ChromeFX System and Materials Pricing

ChromeFX Application Equipment

Industrial ChromeFX Spray System

INCLUDES:

- Cart containing all equipment necessary to do chroming coat. (Each pressure vessel can hold approximately 5 gallons of materials making the ChromeFX System suitable for continues nonstop chroming production runs).
- Seven controls designed to minimize waste and the margin for error.
- FREE 500 feet² (\$2,000 value) of materials with every ChromeFX System purchase.

Each ChromeFX Coatings Package consists of all products needed to coat specified square footage with a Basecoat, Intermediate "Chrome" coat and protective topcoat.

Includes enough materials to "Chrome"		Total Cost	Cost Per SQFT
Package 1	500sqft	\$2,000.00	\$4.00
Package 2	1,500sqft	\$5,250.00	\$3.50
Package 3	3,000sqft	\$9,750.00	\$3.25
Package 4	6,00sqft	\$18,000.00	\$3.00

Specific contents of each kit are given below:

CHROME FX COATING PACKAGE CONTENTS				
COMPONENTS	1	2	3	4
Coverage	500sqft.	1,500sqft.	3,000sqft.	6,000sqft.
Basecoat (CFX-BC)	1 Gallon	3 Gallons	6 Gallons	12 Gallons
Basecoat Hardener (CFX-H)	1 Quart	3 Quarts	6 Quarts	12 Quarts
Tint Topcoat (CFX-TTC)	2 Quarts	1.5 Gallons	3 Gallons	6 Gallons
Topcoat (CFX-TC)	2 Quarts	1.5 Gallons	3 Gallons	6 Gallons
Topcoat Hardener (CFX-H)	1 Quart	3 Quarts	6 Quarts	12 Quarts
INTERMEDIATE "CHROMING" COAT CONCENTRATES				
A Concentrate (CFX-A)	20oz.	60oz.	120oz.	240oz.
B Concentrate (CFX-B)	40oz.	120oz.	240oz.	480oz.
C Concentrate (CFX-C)	40oz.	120oz.	240oz.	480oz.

**All are concentrates to extend shelf life and lower shipping costs.

ChromeFX System and Materials Pricing

- **Package 1:** Includes your choice of three (4 oz.) bottles of our most popular Candy Concentrates color tints
- **Package 2:** Includes one 11 color (4oz.) Candy Concentrate color tint set (CST11)
- **Package 3:** Includes two 11 color (4oz.) Candy Concentrate color tint sets (CST11)
- **Package 4:** Includes four 11 color (4oz.) Candy Concentrate color tint sets (CST11)

SUBJECT: Performance Testing

Salt Spray per ASTM B-117: Standard Practice for Operating Salt Spray (Fog) Apparatus
Over 1050 hours with no evidence of corrosion.

Results: Pass

(Wet) tape adhesion per FED-STD-141C, Method 6301.2

Results: Pass

Specular Gloss/60 @ 395

Impact adhesion 140 IN. /LBS Results: no failure past point of impact, passed test.



CHROME FX CHEMICALS REQUIRED

Coverage	"A"	"B"	"C"
500sqft.	20oz.	40oz.	40oz.
1,500sqft	60oz.	120oz.	120oz.
3,000sqft	120oz.	240oz.	240oz.
6,000sqft	240oz.	480oz.	480oz.

BASECOAT APPLICATION:

Step 1: Mix an appropriate amount of Basecoat (**CFX-BC**) with its supplied hardener (CFX-H) at a ratio of (4:1).

Step 2: Open your flow control knob on your paint spray gun to approximately 2.5 turns from closed position with a wide spray pattern at 28 psi at the gun (based on a SATA Digital RP but adjustments may vary with other types of spray guns). Apply the Basecoat in a heavy flow coat holding the spray gun approximately 10 to 12 inches from the surface using a criss-cross pattern, as you do not apply the basecoat as a regular paint. The basecoat requires **2 medium wet coats**. If you apply more than 2 coats or too heavy of a coat your basecoat will take much longer to dry, you may experience solvent pop (little tiny dust particles in appearance) and the solvents will not completely escape which will definitely result in fogging of your finished chromed object. You will stop the application once the entire object is fully wetted with some very minor signs of orange peel. This is fine as in a few minutes your basecoat will flow out to a surface smooth as glass (required for the Chrome FX process). Avoid touching or sanding the surface and keep any airborne debris from landing on the freshly basecoated item.

**** Keep the basecoat at room temperature for 30 minutes then cure it for 2 hours at 140°F. (Do not cure less than 2 hours or more than 2.5 hours or dry at room temperature 75-77°F for 24-48hrs.)**

NOTE: Basecoat must be completely dry before applying Chrome FX metal or fogging will occur as solvents have not completely escaped.

AIR/ SUPPLY LINES:

Air supply lines to your paint spray booth must be free of oil and water (condensation in the line) filtering is very important as contamination of your process will occur and will ruin your chroming. The Chrome FX process is sensitive to extreme humidity in the air entering the spray booth especially the quality of your air supply.

DISTILLED/DE-IONIZED WATER:

You should always test your water for impurities before proceeding with the chemical mixing so as not to contaminate your chemicals. Your distilled/de-ionized water should be pure with no minerals or salts. You can test your water with a portable Ph meter and your reading should indicate 000ppm.

CHEMICAL MIXING INSTRUCTIONS:

IMPORTANT: Do not use the Chrome FX process if your shop temperatures are cold or below room temperature.

Example: If your Chrome FX mixture has been sitting in you tanks on your shop floor at abnormal temperatures and you then proceed to bring in your Chrome FX machine into a warm spray booth to apply some chrome you may experience problems. The best way is to let the machine sit in a temperature controlled spray booth.



Step 1: Begin by mixing 45ml (1.5 fluid ounces) of a concentrate chemical “A” into 1 gallon of deionized water into a container. This must be prepared fresh daily, mix well.

Step 2: Mix in a separate container (B Tank) 3 fluid ounces (90ml) of a concentrate chemical “B” into 1 gallon of De-ionized water. This must be prepared fresh daily.

Step 3: Measure 3 fluid ounces (90ml) of a concentrate chemical Activator in a separate container and mix with De-ionized water to make 1 gallon. This must be prepared fresh daily.

Step 4: The final container is labeled as “Water” in the Chrome FX System and can be filled completely with de-ionized water as this is your Rinse gun and will be your most commonly used step.

Step 5: Let all the mixtures set for at least 2 hours to get its consistency. After this step proceed to the chroming.

CHROMING PROCESS:

Step 1: Using the Activator gun thoroughly soak the previously basecoated piece until an even sheen is achieved, no dryspots.

Step 2: Completely rinse the **Activator** from the surface using the Rinse gun. **The Activator must be very well rinsed from any pocket’s or rear surfaces of the object being chromed as residual Activator left on the surface will create staining.**

Step 3: Using the ChromFX gun (dual headed gun) begin applying the chrome (ensuring both sides of the gun have an equal amount of volume coming out) starting from the bottom to the top allowing the chemicals to run down keeping the object constantly wet. Do **not** over apply the metal, stop when you have achieved your chrome color. If you notice any yellowing stop chroming and immediately rinse the part completely with the Rinse gun. Using the Chroming gun begin re-applying on any areas that still appears to have a light bluish tint until the desired chroming look is achieved.

Step 4: Rinse the surface completely using your Rinse gun until no chemicals remain.

NOTE: IT IS EXTREMELY IMPORTANT THAT THE CHROMED PART IS THOROUGHLY RINSED OR ANY RESIDUE LEFT BEHIND WILL CAUSE A YELLOWING EFFECT WITH TIME.

Step 5: Using the air gun / blow gun carefully remove all excess water from the part (taking care not to let any water drops remain as this will cause a stain). Must have clean dry air.

Step 6: Wait until all moisture has fully evaporated from the part before moving on to the Topcoat Application. You may let moisture evaporate from chromed part for 10 minutes at 77°F and force dry 10 minutes at 130° F. At least 3 hours.

TOPCOAT APPLICATION:

Step 1: Mix Alsa Clear Polyurethane topcoat (**CFX-TC**) at a ratio of (4:1) with its supplied hardener (**CFX-H**). At this stage Alsa’s Candy Concentrates can also be added to the mixture to achieve a colored chrome effect once applied.

Step 2: Open your flow control knob on your paint spray gun to 3 turns from the closed position and with a wide spray pattern at 28 psi at the gun (based on a SATA Digital RP but adjustments may vary with other types of spray

Step 3: Apply Alsa’s CFX-TC Polyurethane topcoat as you would any clearcoat approximately 10 to 12 inches from the surface with minimal orange peel as the small excess that remains will flow out in a few minutes.

Step 4: Cure the topcoat at room temperature overnight.



TANKS/GUNS CLEANING:

After all the chroming is completed for the day you must clean out the tanks and guns to prevent corrosion and metal particle build up. Proceed as follows:

A: Empty residual products from “ACTIVATOR”, “A” and “B” tanks through the guns.

B: Once draining is completed add a small quantity of distilled/de-ionized water (approx. 0.5 gallon) to each of these tanks and run distilled water through the guns until the tanks are empty.

C: The washing is now completed but you will also want to clean your “A” tank once a week by lightly cleaning the interior walls of the container with a clean rag, then discarding it and not reusing twice as not to contaminate the container internally.

PREPARATION OF OBJECTS TO BE CHROMED:

Preparation is the key to the success of this Chrome FX process before applying the chrome FX Basecoat as we are creating a mirror surface and any minor imperfections will appear in the final finish.

METALS:

Prepare metal surfaces as you would for a professional paint application. Sand 320 to 400 grit dry sandpaper or 500 grit to 600 grit wet sandpaper; then proceed to apply an epoxy primer such as Alsa’s AEP3027. Let dry according to application of product data (2 hours air dry at 77° F), then proceed in applying a black basecoat such as Alsa’s ASB 13 (Jet Black). Apply a minimum of 2 coats preferably 3, and let dry according to application product data. (The reason for using black basecoat over the primer is to be able to see imperfections easily and the application of the Chrome FX basecoat since it is clear in color). You may skip the step of the black basecoat as the Chrome FX will still function properly on any color including the original color of the epoxy primer. Now, once the Jet Black basecoat is thoroughly dry, wet sand the part with 2000 grit wet sandpaper. Then, finish sanding with 3000 grit wet sandpaper. You may avoid the final sanding with 3000 grit sandpaper if you are satisfied with the finished surface of chrome. Now you are ready to apply the Chrome FX Basecoat.

PLASTICS:

For most plastics we may use the same procedure as for the metals, except for polypropylene, polyethylene and others that are difficult in adhesion. To ensure maximum adhesion, you must use Alsa’s PLA-STICK (PS) before applying Alsa’s Epoxy Primer AEP-3027. Then, follow the final steps as per the metals preparation section. For flexible plastics you may use Alsa’s Flex Clear (RC-8420) as a Chrome FX basecoat then apply the Chrome FX metal and finally again the RC- 8420 Flex Clear as a finishing clear. No other clearcoats are to be used on top of the Flex Clear in order to maintain flexibility.

WOOD:

For application of Chrome FX on wood (especially if it is bare) you must apply a wood sealer then proceed by applying Alsa’s Epoxy Primer AEP-3027 reduced as a sealer. Then follow final steps as per the metals preparation section.

CERAMICS AND GLASS:

For ceramics and glass you do not need to use the Chrome FX Basecoat; you can apply the chrome directly to the surface if you have a smooth finish, although the adhesion will be reduced without the Chrome FX Basecoat.

Proceed as follows:

A: Wash object very well with soap and distilled/de-ionized water to ensure complete removal of grease, oils and other contaminants.

B: Rinse with distilled/de-ionized water thoroughly.

C: Dry entire object taking care not to leave finger print marks as hand oils will leave an imprint in the chrome finish; and then you may proceed with the application of the chrome by following the instructions in the chroming process section.