

# PEACOCK LABORATORIES, INC.

## “PCHROME” SPRAYING INSTRUCTIONS FOR DECORATIVE APPLICATIONS

Depending upon size and shape, a number of articles can be sprayed at one time. This is possible by attaching them firmly to a rack or spindle in such a manner as to have all surfaces to be “PChrome” sprayed accessible to the spray. The basic shop requirements include the following:

1. Clean, filtered, dry compressed air supplying approximately 5 cubic feet of air per minute at 60-70 pounds per square inch. This is used for the spraying of the silvering chemicals, protective coatings and for force drying between steps. The air must be clean to prevent contaminants from tarnishing the silver you have sprayed.
2. A spray area with adequate ventilation and a powerful exhaust fan are required to draw fumes away from the operator.
3. De-ionized, demineralized, or distilled water is essential in the production of a long-lasting blemish-free mirror like finish. The minimum acceptable limit of dissolved solids is 10ppm. Dissolved solids adversely affect the deposition of the silver, especially chlorides and sulfates. A brown silver deposit as a bright, metallic color is due to impurities in the water. A simple purity check of your water is to add one drop of concentrated PChrome A solution to 15 ml (1/2 fluid ounce) of water and heat for twenty minutes. A cloudy or white precipitate indicates water impurities.

### PREPARATION OF SOLUTIONS

Peacock Laboratories offers a variety of proprietary silver and reducer formulations for various substrates. The description below details the use of PChrome “P Chrome” formulation. This recommendation is based on the proven ability of this formulation to be effective on a wide variety of surfaces.

Degreasing Solution: Measure 6 fluid ounces (180 ml) of concentrated #77 Solution into one gallon of distilled or de-ionized water and mix.

“PChrome” Solution -Measure 2 fluid ounces (60 ml) of concentrated PChrome “A” Solution into half gallon of distilled or de-ionized water and mix. To this add 2 fluid ounces (60 ml) of concentrated PChrome “B” Solution, and add sufficient distilled or de-ionized water to make 1 gallon. This solution must be prepared fresh daily.

Reducer Solution Measure 1 fluid ounce of concentrated PChrome “C” Solution into a separate container and dilute with water to one gallon. This concentration should not be varied. Ready-to-spray reducer solution left over after day's operation cannot be kept for use the next day. This should be discarded and fresh solution made up for each day's operation.

Sensitizer Solution. Measure 4 fluid ounces of PChrome “D” solution into a container and dilute to one gallon. This solution must be prepared fresh daily.

We recommend that only a sufficient quantity of ready-to-spray solution be prepared for a day's work. Solution containers and fluid tubing should be rinsed with distilled water at the end of each day. Solutions can be used at ambient temperatures or heated to increase the speed of silver deposition. The recommended range of temperatures for optimal “PChrome” deposition is 85-100 F (a 30-38 C). If solutions are fed to the spray gun, a four to six foot head is required.

### Step 1 - Apply and Cure a silverable Black Base-Coat

Articles molded, cast, or otherwise formed of plastic, wood, plaster, and metal require a silverable coating to attain a smooth high gloss base surface for good results. Proper curing of the base coating is essential. Improper curing of the base or silverable coating can sometimes be detected after silvering by a frosted or crackled appearance. This is more liable to happen at edges or in crevices where the coating is heavier than on flat or central areas. Uniform coatings are very desirable on areas to be spray silvered.

Peacock's PChrome receiving basecoat consists of (1) a clear two part coating (Permalac 2KA clear basecoat, and Permalac 2KB hardener), (2) # 69 thinner, and (3) Black basecoat additive. This base coat can be applied on plastic, metal and wood as a receiving coat for a PChrome finish. To start, we recommend that you mix 200 ml of Permalac 2KA, 200ml of Permalac 2KB, 100ml of #69 thinner and 1.5 Oz. Of Black basecoat additive. Spray this mixture evenly on the parts to be PChromed ensuring that the entire surface is coated. We estimate that this mixture will allow you to basecoat about 20 Sq. Ft. *This mixture has a pot life of about 12 hours and so must be used completely by then.*

The receiving coat must not only completely cover the area to be "PChromed", it also must be cured (hardened) before the "PChroming" process can be continued. At room temperature (25 C/75F), the base coat requires 12-16 hours for curing. Curing can be accelerated by baking in an oven at higher temperatures. Before it goes into the oven, the base coat must be air dried for about 90 minutes. Cure for 30 minutes at 65C. Now your part is ready for the next step.

### **Step2. - Degreasing**

Spray the dilute #77 cleaning solution on the base coated surface. This step is required to remove any organics, oils, and fingerprints left on your piece due to handling. You can use a Windex or squirt bottle to apply this solution. Rinse well with the de-ionized water using the water rinse gun.

### **Step 3. – Pre-Chroming**

Spray the PChrome "D" solution using the special sensitizing gun that is furnished for this purpose. It is important that the entire area to be "PChromed" is covered well with this solution.

Rinse the object thoroughly with de-ionized water using the water rinse gun.

"PChroming" the object should be initiated immediately following sensitizing. The surface must not be allowed to dry.

### **Step 4 – "PChroming"**

Begin application of PChroming solutions immediately following the rinse. A special "PChrome spray" gun is required for this step. The two solutions, prepared as instructed under "Preparation of solutions" are fed to the two nozzles of the gun using appropriate fluid dispensers, or tubing and fittings.

The stainless steel parts of the gun and the fluid dispensers resist reacting with the corrosive solutions that come in contact with it. Additionally, the solutions do not mix inside the gun but do so after coming out of the nozzles at a distance of about 6 inches from the gun. Compressed air at 40-60 PSI atomizes the solutions thus enhancing the mixing of the two fluid streams.

The suggested spray pattern is to begin at the bottom of the object and to move in a horizontal manner ascending to the top and then returning to the bottom. The initial Pchrome film will appear as a dark blue color and then quickly develop the bright silver color. Repeat this process until you have the desired reflection and brightness. If spraying a vertical object, you will have to spray a few extra seconds at the top due to the fact that the solution will drain downward leaving the upper portion with a lighter silver layer.

Following the Pchrome application, the bright reflective metal film should be thoroughly rinsed with de-ionized water.

### **Step 5 - Drying the "PChrome" Film**

The Pchromed part must be completely dry and free of water before proceeding to the next step. The part can be air dried or dried inside the 65C oven for about 30-60 minutes. You can also use a hot air gun for a few minutes to dry it.

## **Step 6 - Apply a Clear Top or Protective Coating**

This is necessary to prevent the silver from losing its brilliant reflective qualities because of atmospheric conditions or handling. Depending on the part, top coating can be applied by electroplating Copper, Nickel, or any other metal, or by applying a paint by spray or dip, whichever is most suitable.

First, mix equal parts of Permalac 2KA and Permalac 2KB Hardener and stir well to get a clear mixture. To 4 parts of this mixture add 1 part of #69 Thinner. Mix well and spray on evenly on the surface as top coat. The top coat can be dried in a 65C oven for about 30 minutes. Or you can air dry your chromed part - the top coat will dry to touch in about 2 hours. Allow the part to sit for 24 hours to complete the hardening.

Where a color like gold is desired, a dye is either incorporated into the paint coating before spraying or applied after the coating is applied and dried properly. For example, for gold finish, 2 parts black toner, 2 parts yellow and 6 parts orange can be added to the clear mixture before spraying and curing. Brass can be obtained by adding 1 part black, 2 parts yellow, and 6 parts orange. Under certain circumstances, "chrome" finish will require an addition of 3 parts black, 1 part blue, 1 part violet-blue.

## **ALL YOU NEED TO GET STARTED PCHROMING**

Basic shop requirements include the following:

1. Clean, filtered, dry compressed air supplying approximately 5 cubic feet of air per minute at 60-70 pounds per square inch. This is used for the spraying of the Pchroming chemicals, protective coatings and for force drying between steps. The air must be clean to prevent contaminants from tarnishing the silver you have sprayed.
2. A spray area with adequate ventilation and a powerful exhaust fan are required to draw fumes away from the operator.
3. De-ionized, demineralized, or distilled water is essential in the production of a long-lasting blemish-free mirror like finish. The minimum acceptable limit of dissolved solids is 10ppm. Dissolved solids adversely affect the deposition of the silver, especially chlorides and sulfates. A brown silver deposit as a bright, metallic color is due to impurities in the water. A simple purity check of your water is to add one drop of concentrated PChrome A solution to 15 ml (½ fluid ounce) of water and heat for twenty minutes. A cloudy or white precipitate indicates water impurities.

*Recommended quantities of the Basecoat, PChrome Concentrates And Topcoat will cover approximately 400 Sq.Ft.*

**PChrome Concentrates- 1 pint unit consists of :**

**PChrome A Solution -1 pint  
PChrome B Solution- 1 pint  
PChrome C Solution- 1 pint, and  
PChrome D Solution - 1 pint.**

**#77 Cleaner: 1 pint  
Permalac 2KA: 2 gallons  
Permalac 2KB: 2 gallons  
#69 Thinner: 1 gallons  
Black Basecoat additive: 1pint**

**EQUIPMENT:**

PChrome ABC spray gun -1  
PChromeD spray gun -1  
Siphon Bottles (Qt)-3  
Rubber Gloves: Two pairs, assorted sizes, please specify.  
Safety Glasses: Two pairs. Wear a pair at all times when working with chemicals.  
Clear Vinyl Aprons: Two only.  
Cartridge Type Respirator: Includes ammonia, and organic vapor cartridges - 2

*These instructions are the result of our development of the process for first surface reflections and decorative purposes specifically. Variations from these instructions will probably be desirable at each installation to fit individual conditions*

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