TECH LINE COATINGS, INC.
Powdr$_2$O™ (L2O) Application Procedures

The following is a list of the basic equipment and product needed to successfully apply TECH LINE **Powdr$_2$O**. This list is only general and in many cases will be augmented with additional equipment such as acid and alkaline rinse tanks as well as phosphating equipment.

Mixing Ratios: The mix ration of liquid to powder is approximately 50/50 by weight. Each powder has a slightly different weight so it would be advisable to do a test spray first. If pinholes or craters appear after curing the mix needs more powder. If orange peel or a similar finish appears the mix needs more water. It is best if using more than one color to record the mix ratio for future reference. The mix should be high speed dispersed using a dispersion blade or a blender set at high speed. Use distilled or purified water for mixing.

1. Pre-clean all parts. Remove all oil, grease, dirt, moisture or other contaminates.
2. Sandblast utilizing 120 grit aluminum oxide or similar material at @35 PSI in a suction type cabinet.
3. Remove all blasting residue or oil from hands, if handled. It is best to handle with hooks or clean, cotton gloves.
4. Apply the coating. For best results use a gravity feed (top feed) detail touch up type gun with a nozzle size of **1.8mm or larger**, with a 2.0 mm nozzle recommended. Either standard of HVLP. Apply coatings at 60 PSI or higher as needed. Film thickness should be a minimum of .003" after cure. All coatings should go on with a wet appearance. Coating should be applied in a spray booth with proper ventilation. Use the appropriate respirator. **Always consulate the SDS**
5. Inspect parts for complete coverage and for runs while still "wet", or other indications of improper coverage.
6. For most coatings simply allow 30 to 45 minutes at room temperature for drying. All water born coatings need a little heat to accelerate water evaporation on either cold or humid days. Dry time can be accelerated by providing a warm air flow or in some cases it may be necessary to pre heat the parts to approximately 75F.
7. Inspect parts for complete coverage.
8. Bake in any oven capable of holding the parts and achieving the range of bake temperatures. Normally baking at temperatures above 425f is not necessary. An upright air-circulating oven is best, using either gas or electricity for heating. Do not use an oven for parts that need to be "hung" , that does not allow them to be suspended by hooks, as lying down could mark the coatings. Bake time is typically 15 min at the cure time specified for each particular product. **Follow the recommendations of the powder manufacturer as to cure time and temperature.**
9. After parts cool, Inspect parts for complete coverage and for runs or other indications of improper coverage.
10. Inspect to ascertain that the coating has not delaminated or is in any other way not satisfactory.

TECH LINE does not recommend any specific brand of oven. Any oven of an adequate size and heat range will work. All ovens should be explosion proof and vented properly.

A spray booth should be utilized. .

All air pressures given by TECH LINE for sandblasting are based on the use of a suction type sandblast cabinet. Pressure pots while excellent for many applications must be pressurized at much lower settings than are given in our instructions. If using a pressure pot you will need to experiment to determine the proper working pressure. In addition a pressure pot will need an internal agitator to keep the solid in suspension.

The solvents recommended for degreasing are; acetone, M.E.K., lacquer thinner or other non-petroleum based materials. You must use a solvent that leaves no residue. In many instances if you handle the parts with hooks or clean cotton gloves it will not be necessary to degrease after blasting. If the part has been handled be sure that the solvent is completely evaporated before applying any coating.

When preparing to coat used parts it is best to do a "burn off" or bake the part, for 20 to 30 minutes, to remove any contaminates that may have been absorbed into the part during use. Generally this should be done before sandblasting, at a temperature slightly higher than the cure temperature of the coating to be applied. **Be sure that the part can handle the burn off temperature to avoid damage.** This will drive out any contaminate that could affect the bond of the coating during the cure cycle.

Special Note Section:

1) Do not apply too heavy a coat at a time this will trap water causing bubbling of the coating, or the coating will pull apart in areas.
2) Make sure the coating is completely dry before melting or curing the coating, bubbling will occur if it is not completely dry, drying at just below the melt and flow temp of the coating will dry the fastest. Depending on the coating material and substrate this can be from 90º f. to 150º f. Do Not dry at temps above 150F as this can start the melting of the powder and negatively affect the final appearance.
3) While Powdr$_2$O does allow you to spray into a "box" or down a hole, care should be used not to build up too much material in any one area with a single coat. It would be better to apply multiple thin coats.
4) Apply to all hard to reach areas first so as to not build up too much material in any one area.
    a) To spray as one wet coat on a larger part requires spraying an area of the part until it has the correct coverage (even wet coat) and then leave it. Then move on to another area and not come back to "wet out" a light spot in the previous area as this may have simply dried and has the correct amount of material for this coat.
5) Multiple coats can be applied for various effects.
    a) Apply each coat as a solid wet coat trying not to build up too much material in any one area. After drying, bake at a temp that will allow the coating to melt and flow, typically this will be at least 180º (f.). Leave in the oven only until the coating has formed an even smooth appearance.
    b) If a large number of coats are to be applied it is best to fully cure a coat before applying the next coat, as this will reduce the number of layers out gassing at any one time. Too many layers may inhibit the ability of a lower level to completely out gas. If it does not out gas completely, bubbling in the final finish may occur.
    c) Allow the part to cool to the touch and apply the next coat.
    d) If there are imperfections in the coating you can wet sand the coating after baking but before the next coat to smooth out the coating surface. It is not necessary to sand between coats unless you want to correct a flaw or produce some other effect, the coatings will melt together when the next bake cycle is performed, this process can be used for multiple coats to achieve the desired effects.
6) While the powder from Powdr$_2$O will stay in place on the part much better than in electrostatic powder, the coating can be damaged by physical contact. Care must be taken to avoid damaging the coated part before baking.
7) Powdr$_2$O can be used to touch-up areas on a part that has been powder coated (by electrostatic or other method), for areas that were missed or damaged in handling.
    a) Repair of a damaged part can be accomplished by using a small touchup brush, toothpick, paperclip, etc… dipped into the Powdr$_2$O and lightly applied to the damaged area, allow the part to dry, and then baking. This process can be used to fill small holes in parts as well. If the part has been fully cured a light sanding of the damaged area is recommended to give the repair a surface to hang on to.
8) Any one of several issues can cause spitting/separation of the coating during application.
    a) Coating not properly dispersed; use a high speed dispersing blade of the correct size for your container; use stainless steel ball bearings in smaller containers and ball mill them; etc…
    b) Coating drying in gun; can be caused by using too small of a spray opening (1.4 mm minimum recommended); using too fine a setting for the material (not putting out enough material in the spray); not using a wide "fan" pattern; etc…

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