

## Congratulations!

Thank you for downloading this E Book version of the Production Manager Pro Suite brought to you by Ceramic Applicator Pro Guides in conjunction with Zoofactory Coating Systems and approved by the Ceramic Coatings Institute.

This E book is a scaled down free version of important excerpts from the Production Manager Pro Suite. It is intended to give our readers an introduction and general overview of how to apply ceramic coating technology. If you're a professional painter or other type of applicator, an engineer, or just a hobbyist interested in learning more, this Suite is for you.

Ceramic coating technology is becoming increasingly well known for its beneficial properties in both thermal management and corrosion resistance. The technology's impact on the automotive industry thus far is profound given the improved horsepower, torque, and fuel economy made possible by its application to various exhaust systems and other engine components

It has been our goal to go beyond the basic understanding of what the technology is and how it can benefit a given application. The internet is full of information related to the technology and how it has helped countless racers, street rodders, truck operators, and engineers both inside the automotive industry and beyond.

However, when it comes to understanding the application process of these wonderful materials... Well let's just say there's a great big void.

Although ceramic coating application shops are popping up here and there, the owners of these facilities are left to their own devices to figure out the specific procedures and techniques required to do the application properly. Unfortunately, the instructions on the side of the can do little to give anyone a real thorough understanding of how to apply the ceramic coatings properly, let alone how to establish a critical path to a successful business model. The valuable time and money lost fully understanding this process can consume resources that a business start up just can't afford.

That's where we come in.

We've been applying ceramic coating technology for years now and we've provided services for The U.S. Army, U.S. Marine Corps, Honeywell Turbo Technologies ( parent company to Garrett Turbochargers, and a multitude of other professional race team and hobbyists.



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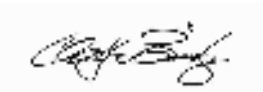
**\*Find additional information, detailed specifics, and complete comprehensive guidelines for each step in the Production Manager Pro Suite.**

Our belief in this technology is such that we think it should be made widely available to the general public as quickly as possible because of its potential impact on fuel consumption as well as the added value related to part performance and longevity.

Previously, this technology has been only available to a few large corporations that for years cornered the market and kept this technology as far away from smaller job shops that were interested in acquiring it. That said, it has been only until now that customers have had to ship their components across country and wait for weeks until their part was returned. We're making it possible for local shops to start up and service the local economy thereby making the technology readily accessible and convenient to people that might otherwise would lose interest.

So this is for you, the entrepreneur, the body shop owner, the painter, the manufacturer, or the hobbyist that is taking a closer look at the opportunities provided to you and your customers, your clients, or maybe just your friends. This E Book is an overview of what you'll find in the Production Manager Pro Suite that is further complemented by the Business Manager Pro and Sales Manager Pro Suites that create a "trilogy of know how and how to own, operate a ceramic coatings facility in your local economy".

Thank you for your time, and we hope you put the information to use!



Chris Bridges - Contributor

Ceramic Coating Applicator Pro Guides  
**Production Manager Pro**

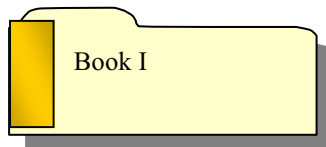
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## Let's Get You Started!

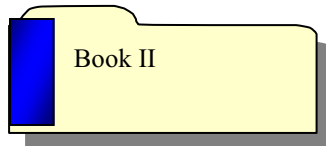
The backbone of the Zoofactory Coating System is the Production Manager's Suite. It has all of the materials, methods, and cheat sheets that you'll need to perform professional ceramic coating applications.

Should you choose to gain a more thorough understanding of how to apply ceramic coatings, be sure to download the full version of the Production Manager Pro Suite that covers all of the details necessary to do a properly complete application.

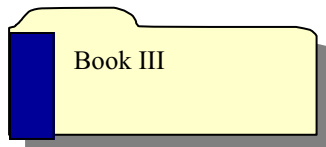
The following pages contain excerpts from **Book I of the Production Manager Pro Suite** titled **Application Processes Plus** that provides you with a better understanding of what information the Suite contains. Like the Business Manager's Suite and Sales Manager Pro Suite it comes complete with a Filing Cabinet feature for all of your production guides and is presented in the following context:



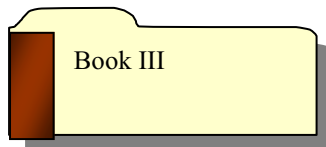
**Application Processes Plus**  
Header & Exhaust Guide  
Accessory Component Guide



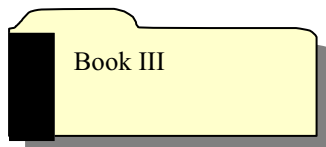
**Engine Components Plus**  
Cylinder Head & Valve Train Guide  
Piston Guide



**Equipment & Maintenance**



**Health & Safety**  
Personal Protection  
Safety Guidelines



**Ordering Shop Supplies & Consumables**

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This E Book covers parts of each of the steps below. Be sure to download the full version to obtain very specific details, techniques, and valuable knowledge regarding the following areas.

## **Applications & Processes Subfolders**

Subfolder #001.0	Pre-Processing Functions
Subfolder #001.1	Degreasing
Subfolder #001.2	Acid Wash
Subfolder #001.3	Pre-Bake
Subfolder #001.4	Masking
Subfolder #001.5	Surface Preparation
Subfolder #001.6	Blending
Subfolder #001.7	Spray Application
Subfolder #001.8	Oven Curing
Subfolder #001.9	Polishing & Finishing

### **1.1 Degreasing**

Often parts will arrive at your facility completely covered in grease, oil, dirt, or a combination of all three. In many instances, the parts might look like they came right out of the junk yard where they've been sitting in a greasy mud hole for the last ten years. Our advice: Commit to a policy that requires your customers to bring you relatively cleaned parts, free of oil grease and dirt. Naturally, you're going to have some on most parts; It's a natural part of the business. Nonetheless, have a limited tolerance regarding what you will accept and what you won't.

### **1.2 Acid Washing**

Job parts received that have been previously coated or heavily soiled shall be soaked in the acid bath prior to pre-baking and blasting. Previous ceramic coatings are extremely difficult to remove through blasting alone. This process helps speed up the blasting process and helps keep the blasting media free of foreign matter and other impurities.

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### **1.3 Pre-Baking**

Preparation really begins during this step. For all job parts, new and used, it is mandatory to conduct a "pre-bake" function or "burn-off" where you will bake the part, for 25 to 30 minutes, so as to remove any contaminants that may have been absorbed into the part during its use.

Pre-bake is to be done before blasting, at a temperature slightly higher than the cure temperature of the coating to be applied. This will drive out any contaminants that could affect the bond of the coating during the cure cycle.

### **1.4 Masking**

A section of the Applications & Processes Module provide you with knowledge of all types of masking materials and techniques used when working with ceramic coatings.

### **1.5 Surface Preparation**

Surface Preparation of the coating is the single most important step in the application process. Far too often blasting is considered to be an easy-to-do, mundane task that virtually anyone can do. Above all else, this is a myth.

Surface Preparation is key to any successful application be it automotive or residential painting, wood staining, or as is especially the case with our ceramic coatings. Surface Preparation becomes even more crucial in ceramic coatings because it is the substrate profile created by the blast media that ensures proper bonding and adhesion of the coating to the substrate.

Surface Preparation is taken very seriously and is one of the primary differences in the Zoofactory Coating Systems Application Process when compared to other application systems.

We focus most of our production time in the following areas of Surface Preparation:

- **Profile**
- **Media Type & Pressure**
- **Handling & Techniques**
- **Operational Limits**

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## 1.6 Blending

Blending of the materials is a necessary step prior to the application of any of the materials widely available in the industry. Although paint rollers, shakers, and ball mills are handy tools to have on location, nothing is more necessary or essential than a few household blenders, available from any local superstore. Be sure to purchase blenders that have containers made of glass, not plastic. You'll also want to have a minimum of two blenders on hand; one for solvent based coatings and the other for water based coatings. Never use one for the other.

Blending is easy. However, before you start, make sure your spray application gun is hooked up and ready to go because the moment you're done blending, you'll need to be coating or else the material will settle in the spray gun. ( A definite no-no.)

## 1.7 Spray Application

**Be sure to be patient with yourself as this is as much an art as it is a science, and to turn-out perfect work right from the start may be a bit over optimistic. That said, by following these guidelines coupled with the knowledge you can receive from an Applicator Training Program at our facility, you'll be able to do professional grade work within 2 to 3 weeks of your first attempt.**

**Always review the MSDS sheet before applying any coating.**

**Always read and adhere to the safety and application instructions associated with the product.**

**Coatings should be applied in a spray booth with proper ventilation and safety standards.**

**Use appropriate chemical respirators when spraying solvent born coatings. When spraying waterborne coatings to avoid breathing fine particulate matter and mists as some contain a small amount of acid.**

### Spray Techniques

When applying the coating be sure they go on with a wet appearance. Multiple coats are not necessary and are wasteful.

Spray hard to reach places first.

Spray the insides of pipe before spraying the outside. In order to ensure complete coverage of the inside of the pipe, open the material knob and air knob on the spray gun applicator, pull the trigger, and let the material fly.

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## **Clean Up**

Proper clean up is essential.

First clean the spray gun applicator. For water-based coatings, just use water. Run water through the gun at the sink, and the dismantle the moving parts ( nozzle, tip, spring, knob, needle, and cup). For solvent based coatings do the same, except use acetone or other like material and make sure all material is removed from the inside of the gun.

Second, be sure to clean up the blender. Same holds true as with the spray gun applicators. Use water for water-based coatings and acetone for solvent-based coatings. Be sure not to leave acetone inside the blender for long periods of time because this will begin to eat away at the plastic base of the blender which will render the blender useless.

**Be sure to dispose of all used acetone properly, congruent with local, state, and federal hazardous material disposal laws.**

### **1.8 Oven Curing**

Bake in any oven capable of holding the parts and achieving the range of bake temperatures.

Normally baking at temperatures above 700f is not necessary. However acquiring an oven that will reach 850f can be advantageous in special applications. An upright air-circulating oven is best, using either gas or electricity for heating.

Follow manufacturer's specification tables with regard to individual coatings.

### **1.9 Polishing**

For chrome ceramic metallic and stainless steel ceramic coatings it will be necessary to conduct a polishing operation. For best results polish large pieces in a vibratory polisher using our proprietary process that use miniature ceramic balls and the appropriate polishing compound. Smaller engine components such as pistons can be polished by using hand tools and materials.

Be sure to operate your vibratory polisher for up to 30 minutes before inserting a component. The motion causes friction which produces heat. The result is warmer beads that help burnish and polish the coating better and faster.

When inserting the component in the polisher, push it under the beads completely so it is not visible.

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## Finishing

Finishing is the process of individual inspection of each completed component. Check for runs, cracking, or areas of delaminating from tub rub or improper coating application.

Double check for areas of dry spray then can be knocked down with sand paper and then dropped back into the polisher.

Once you are satisfied, remove wipe down the component after rinsing with a dry cloth. Use your favorite compound to further add to the shine capable on these parts. We like to use 3M product, Mother's, and Wizard's product lines.

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We hope you've enjoyed this E Book while gaining insight and valuable information regarding ceramic coating applications.

If you would like to download the full scale version simply visit <http://turbocoatings.wordpress.com> and click on the appropriate link.

If you have additional questions regarding the Production Manager Pro Suite, the Sales Manager Pro Suite, or the Business Manager Pro Suite please contact us at using the contact information below.

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**Production Manager Pro**

Special Thanks to Zoofactory Coating Systems, LLC



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