CERAKOTE®

CERAKOTE.COM

TRAINING MANUAL

H-SERIES & CERAKOTE ELITE

ADDITIONAL TRAINING VIDEOS AVAILABLE AT
YOUTUBE.COM/CERAKOTE

PLEASE READ

Cerakote® Ceramic Coatings are designed for professionals and should be applied by Cerakote Certified Applicators and coating professionals with proper training and equipment. This training manual is intended to be used as a supplemental guide for certified and professional applicators ONLY. It is critical to follow all instructions in this manual. If for any reason you are not willing to, or cannot follow the steps in this manual, do not attempt to coat any product using Cerakote®, or any other NIC product. If you have any questions, please contact us.

Thank You For Finishing Strong With Cerakote!

CERAKOTE
An NIC Industries Innovation
866-774-7628 | CERAKOTE.COM

ADDITIONAL TRAINING VIDEOS AVAILABLE AT
YOUTUBE.COM/CERAKOTE

Which Cerakote® Series is right for you?

Cerakote® H-Series

The World's leading thin film coating. Cerakote® H-Series is a line of ceramic-polymer hybrid coatings that is designed to provide unmatched performance with an attractive and desirable finish. Cerakote® H-Series coatings provide exceptional corrosion protection, hardness, adhesion, flexibility, impact, chemical and wear resistance. These industry leading performance characteristics are all achieved at low film thickness, making H-Series an ideal surface finish for a wide range of applications, especially those with tight tolerance requirements. Cerakote® H-Series is compatible with a wide variety of substrate materials, exhibiting excellent adhesion to metals, plastics, polymers, wood, glass, fiberglass and carbon fiber composites.

Cerakote® H-Series coatings are a two-component, easy-to-apply, oven cure system that are VOC exempt in all 50 States. In addition to industry leading performance, these coatings have one of the lowest cost per square foot of any comparable coating on the market. Refer to product specific SDS with your local, state and federal regulations to ensure VOC compliance. Cerakote® H-Series coatings are available in over 100 colors, many with adjustable gloss levels to suit your requirements. Most H-Series coatings can be mixed together to create unlimited custom colors and shades.

Recommended applications include, but are not limited to: Firearms, knives, tools, eye wear, consumer electronics, wearables, industrial valves, sporting and athletic equipment, robotics, audio equipment, fresh and salt water applications and any other application requiring a tough and durable performance coating.

Cerakote® H-300/H-301 Clear Coatings

Please refer to product specific application guide at Cerakote.com

NOTE: If you're coating parts that will sustain temperatures greater than 500 degrees Fahrenheit (F), such as full auto barrels, full auto suppressors, exhaust components or parts that can't be cured in an oven, refer to the High Temperature Coatings section at **Cerakote.com**.

CERAKOTE®

ELITE SERIES

We've Taken H-Series To The Next Level.

The Cerakote Elite Series features improved hardness, abrasion resistance and lubricity, all in a thinner application. This has been accomplished by developing an advanced resin technology that enables the incorporation of the highest performance engineered ceramics.

Cerakote Elite is available in 10 modern, earth-tone colors that can be mixed or patterned to create the highest performing, customized finish.

Refer to Cerakote Elite Technical Data Sheets at Cerakote.com for product performance information.

Disassemble

Completely disassemble your project.

Detail strip your project. If it's a firearm and you are unfamiliar with this level of disassembly, have a certified gunsmith perform the disassembly and reassembly.

Take a photograph of all the parts received. Make note of the substrate type on each piece (i.e: steel, aluminum, plastic, composite, polymer, etc.)

Degrease

Soak each metal part for 20-30 minutes in a degreaser such as Brake-Kleen®, Simple Green®, or acetone. Spraying or wiping is not sufficient for metal parts; soaking is required.

Using a small degrease tank with a wire basket makes degreasing quick and easy (Item SE-272, found at Cerakote.com). Place the screws, pins and other small parts in a smaller container so they are not lost during the soaking process. Allow parts to air dry after soaking.

From this point on it is critical to avoid touching the parts with your bare hands. Use powder-free latex or Nitrile gloves to handle the parts.

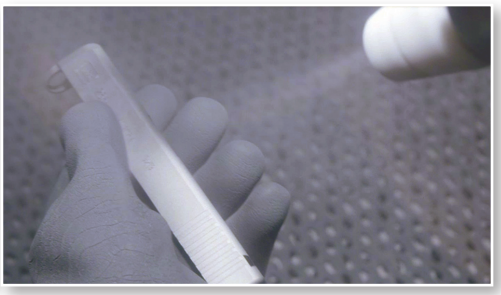
Tip:

• In most cases it is not necessary or recommended to soak plastic and polymer parts in a solvent based degreaser as to avoid damaging the part. Thoroughly wiping plastic and polymer parts using a lint free towel and with a compatible degreaser, such as Wax & Grease Remover, is sufficient.

• **Note:** There are alternative high volume degreasing methods that may be more appropriate for your situation. Please contact a Cerakote Technical Advisor to discuss other suitable degreasing methods.

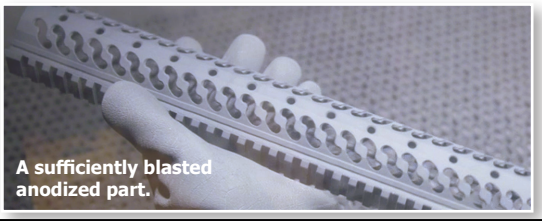
Sandblasting

Begin by plugging or masking any surface you don't want sandblasted. For firearms, begin by plugging the bore at both the chamber and the muzzle end of the barrel prior to blasting. Sandblast the parts with #100 grit aluminum oxide or garnet sand at 80 to 100 psi. Lightly blast (30-40 psi) non-metal parts such as: wood, fiberglass, plastic or polymer. For anodized aluminum parts, set the blasting pressure to 30-40 psi. Strive for an even blast pattern over the surface of the part.



TIPS:

- If the part's surface is still shiny after blasting, you haven't blasted enough.
- If you use too coarse of sand or aluminum oxide, the microscopic valleys on the part's surface will be too deep for the 1.0 mil (.001") coating to completely fill while covering the corresponding "peaks" sufficiently to assure a satisfactory coating.
- Anodized parts, such as AR-15 uppers and lowers, do require blasting, however, it is not necessary to completely remove the anodized finish. Anodized parts that have been sufficiently blasted should have a dull, matte appearance.



A sufficiently blasted anodized part.

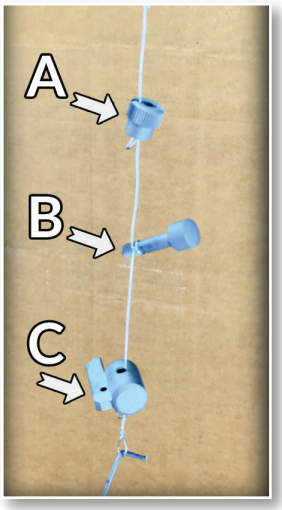
- **DO NOT** use any type of round blasting media such as glass beads or steel shot. Round media will dimple the surface rather than etching it, and will not yield a sufficient blast profile for optimum coating adhesion.
- **DO NOT** hand sand parts as this will not yield a sufficient profile for optimal coating adhesion.
- **DO NOT** use sand or aluminum oxide that has been previously used to clean dirty, greasy or oily parts. Doing so will contaminate your parts.

Racking

Hang or otherwise fixture your parts so that you can access all the surfaces of each part with your LVLP gun (SE-138). A variety of metal hooks in multiple sizes are ideal for racking larger parts, while thin wire or alligator clips are ideal for fixturing screws, pins and other small parts (SE-175).

REMEMBER: ALWAYS WEAR POWDER-FREE, LATEX OR NITRILE GLOVES WHEN HANDLING PARTS.

Correct Racking Techniques



Properly racked small components.

A variety of properly racked parts.

TIPS FOR RACKING SMALL PARTS:

A) Pieces with a single hole are held in place by a loop in the wire.

B) Bolt heads are pointed up above the horizontal plane.

C) Heaviest pieces are at the bottom of the chain.

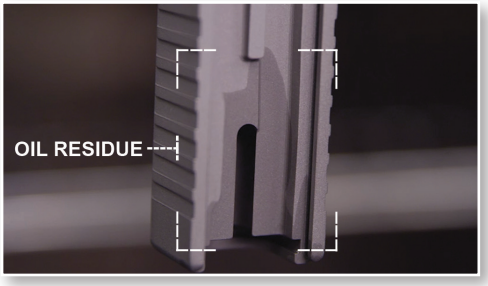
Gas-Out

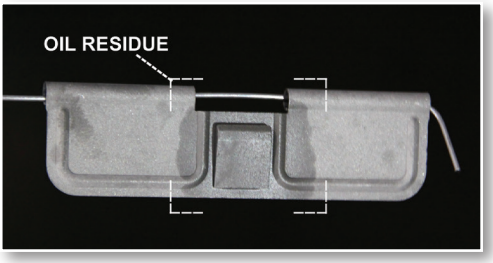
After parts are racked, heat **metal** parts in the oven at 300 degrees Fahrenheit (F) for 60 minutes. Gassing out will evaporate any remaining moisture and solvents and bring any remaining oils to the surface.

CAUTION

• Plastic and polymer parts should be gassed-out at a lower temperature, generally between 150-180 degrees Fahrenheit (F) for 60 minutes.

If you're unsure as to the temperature stability of your parts, contact the manufacturer prior to gassing-out and curing non-metal parts.





Examples of oil still on parts after gassing out. These will have to be re-cleaned and reheated.

Remove the parts from the oven and allow them to cool. If no oil is visible on the surface, proceed to Phase Six.

See Oil?

If you see any oil residue or other indications that oil was brought to the surface of the part, re-clean the part by soaking it in the degrease tank and gassing out for an additional thirty minutes.

This step will need to be repeated until no oil residue is visible after gas out. When the parts are free of oil, re-blast to remove any residue from the surface and proceed to gas out. Once the part is oil free, move on to Phase Six.

Coating Preparation

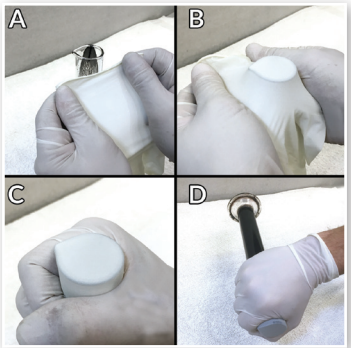
Begin by vigorously shaking the bottle by hand or with a paint shaker until the coating is completely mixed, *then shake some more for good measure (up to 5-10 minutes)*. We recommend a paint shaker for quarts and gallons.

Determine how much Cerakote you intend to use before adding catalyst (see table 1 pg. 11) Pot life for mixed Cerakote is approximately **two hours** in an open or closed container. Mix only what you intend to use, to avoid wasted coating.

1.) Pour the desired quantity of Cerakote into a glass graduated cylinder (SE-147A).

2.) Add the catalyst. Use table 1 pg. 11 to determine Cerakote to catalyst ratio for finish type.

IMPORTANT
DO NOT mix Cerakote and catalyst in plastic containers as this will compromise the integrity of the coating.



3.) Stretch a clean, powder-free latex glove (A) and place over graduated cylinder (B). Tightly seal glove over graduated cylinder (C) and thoroughly mix coating by shaking (D).

4.) Pour mixed coating through a 150 mesh strainer for most* **H-Series** products, as shown (NIC Part # SE-276).

NOTE: Elite Series requires a 325 mesh filter for proper straining.

TIPS:

- Agitation of coating in spray gun is required if spray gun sits any longer than 15 minutes.

* H-Series coatings that have a higher metallic content, such as Gunmetal Grey, a 100 mesh strainer should be used for proper filtering.

Coating Preparation Continued

NOTE: If the proportions of Cerakote to Catalyst are incorrect, or the combination of Product and Catalyst are not thoroughly mixed, the quality and performance of the coating will be adversely affected.

DO NOT MIX CERAKOTE & CATALYST IN PLASTIC CONTAINERS!

Table 1 (H-Series)

H-Series / Catalyst Ratio	
Matte Finish	24:1
Satin Finish	18:1
Semi Gloss	12:1

Table 1 (Elite Series)

Elite Series / Catalyst Ratio
18:1 ONLY

DO NOT exceed the recommended Cerakote to Catalyst mix ratios.

Table 2 (18:1 Ratio)

Cerakote / Catalyst Ratio Usage Chart		
Firearm	**Cerakote mL/cc**	**Hardener mL/cc**
Pistol	36	2
Rifle	72	4

- **Read and follow the instructions that come with the color(s) you are using. Some product to catalyst ratios are different depending on the color used.**
- **Please Note: Some Cerakote coatings require a specific catalyst ratio. Always review the product specific technical data sheets at Cerakote.com prior to coating preparation.**

Clean all containers and equipment with acetone. A squeeze bottle and bottle brush are helpful tools for cleaning.

Spraying

CAUTION

Spray in a well-ventilated, well-lit spray booth, wear a respirator, protective gloves and safety glasses. Refer to the SDS for additional safety and handling information at Cerakote.com

Final Checklist Before Spraying

• Plug or mask off all parts that are not to be coated. Remember Cerakote is applied at 0.0005" - 0.001" which is very thin, most areas do not require masking, however, if you are unsure, contact Cerakote for assistance.

• Ensure all parts to be coated are hung securely to avoid contact during the application process

• For firearm applications, do not coat springs, sears, firing pins, bolt faces, gas rings or feed ramps.

• During the application process, ensure that the coating is properly agitated. Due to the high level of solids, Cerakote settles quickly and should be agitated frequently.

• Do not begin the spraying process unless you are able to complete the curing or flash process directly after spraying. Letting parts sit uncured or unflashed for extended periods of time will reduce the performance of the finished product.

PRACTICE

Practice spraying on a piece of paper to adjust the spray pattern and to practice your spraying technique. Spray with the gun 3 to 5 inches away from the paper and adjust the spray pattern to between 2 and 3 inches wide.

A particularly good exercise is to spray and cure a few machine screws and matching nuts. You should be able to screw the nut onto the machine screw without difficulty. If you can't, you may be spraying too heavily.

Spraying

Blow off parts with dry compressed air to make sure there is no trapped media in holes or pockets. Sand left behind will cause surface defects. Make sure parts are at room temperature.

Start spraying in the most difficult area of each part, then progress and finish to the easier areas. This should help avoid runs and thin spots. For **H-Series, 20-25 psi** is recommended for proper application. For **Cerakote Elite, 25-30 psi** is recommended for best results.

CAUTION:

The most common application mistake is dry spray. Dry spray has a rough, sandpaper like appearance and is typically caused by spraying too far away from the part, too wide of a spray pattern, not enough material coming out of the gun or too much air pressure.

If you experience dry spray, ensure you are no further away than 3 to 5 inches away from the part, reduce your spray pattern to between 2 and 3 inches wide, check that your air pressure is no higher than 20 to 25 psi for H-Series (25 to 30 psi for Cerakote Elite), and finally adjust your fluid control to ensure you have adequate coating material being applied to "wet out" the part in one pass.

Example of dry spray; notice the rough, sandpaper like appearance

Spraying

When spraying, strive for even coverage (you are seeking a half thousandth to 1 thousandth inch coating thickness - 0.0005" - 0.001"). Spray with sufficient volume so that the Cerakote does not dry spray, which is when the coating dries in the air before reaching the part.

When spraying, the part should appear wet but not so wet that it wants to run. Cerakote will still be wet to the touch until it is oven cured. If you touch any coated parts before curing, the coating will be smudged and will need to be refinished. To achieve the recommended film thickness, one to two wet coats are recommended.

Example of "wetting out" the part

TIPS:

- Use an LVLP (Low Volume, Low Pressure) spray gun with 0.8mm tip.
  (IWATA LPH80 recommended - SE-138)
- Spray with a 2-3" horizontal fan 3-5" away from the part.
- H-Series: 20-25 psi
- Cerakote Elite: 25-30 psi
- Insufficient volume of coating being applied with the 2" pattern will result in dry spray or a rough texture.

Spraying

After each part is coated, set it aside for about fifteen minutes. Cerakote will still be wet to the touch until it is oven cured.

If you touch any coated parts before curing, the coating will smudge and will have to be refinished.

"MISTAKES"

If a mistake is made during spraying (such as a run), do not attempt to wipe down the part and re-spray. Rather, remove the wet coating with Brake-Kleen® or acetone, allow to dry, then re-blast the part. Finally, blow off the part and re-spray.

Cleaning Up

Clean your tools and spray equipment with acetone. Contact Cerakote with questions regarding cleaning solvent compatibility. Dispose any unused catalyzed Cerakote according to local and state regulations.

DO NOT return any unused catalyzed Cerakote to the bottle.
Pouring catalyzed Cerakote back into the original bottle will render the remaining coating useless.

H-Series & Elite Series Curing Schedule

CAUTION
If you are unsure as to the temperature stability of your parts, contact the manufacturer prior to oven cure.

Some Cerakote Coatings require specific cure schedules. Always review the product specific Technical Data Sheets at Cerakote.com prior to curing.

Cure Schedule For H-Series & Elite

Material	Temperature	Time
Metal	300 Degrees F	1 Hour
Flash Cure (Stencils)	150 - 180 Degrees F	5-25 Minutes
Plastic or Polymer	150-180 Degrees F	2 Hours
Wood	150 Degrees F	2 Hours

Flash Cure for Stencil Application

When applying Cerakote over Cerakote, flash cure at 150 - 180 degrees (F) for 5-25 minutes. Allow parts to cool to room temperature before applying additional color(s). When flashing parts for camouflage or stencils, all parts must be fully cured within 24 hours from the initial flash.

After curing is completed, remove the parts from the oven and allow them to cool. Parts are ready for reassembly and use once they are cool enough to handle.

We recommend the following products for the best results during the Cerakote prep and application process, available at Cerakote.com.

Cerakote Plug Kit

High Quality Plug Set loaded with over 300 of the most common plug sizes. (SE-220)

Kit Features:
- Most complete starter kit on the market.
- Plugs can withstand continuous temperatures of 600˚F (315˚C).
- Great for Cerakote masking.

Cerakote Shake-N-Blast Canister

Metal Shake-N-Blast Canister is perfect for efficiently blasting small parts. (SE-221)

Note: The Shake-N-Blast Canister is designed for parts roughly 0.500 inch cube down to a 0.087 inch cube in size.

Cerakote Hook Kit

Hook Kit loaded with the most common hook sizes. (SE-175)

Kit Features:
-Most complete firearm coating hook kit available.
-Reusable industrial coating hooks.
-Multiple styles, lengths and gauges for all coating scenarios.
-Hand picked sizes from the Cerakote Instructors to work on all firearm types.

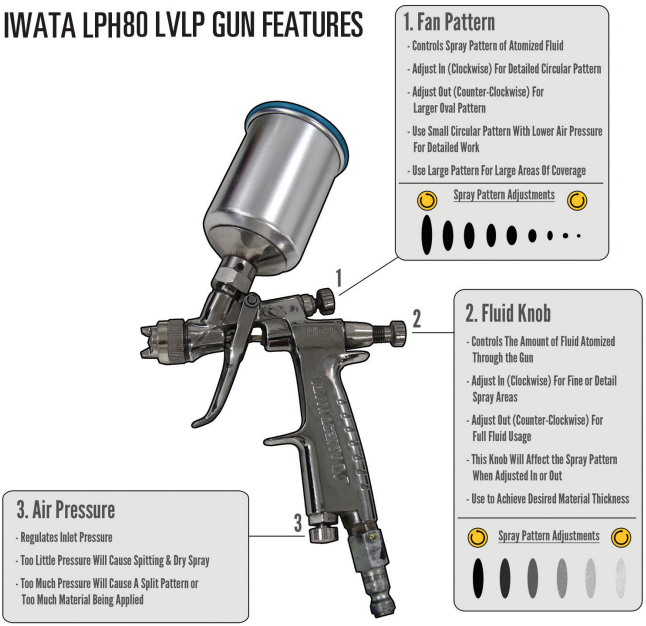
HR Top Loader Balance Scales
(SE-269)

Ensuring your coating/catalyst ratios are precise is key for maintaining consistent gloss, batch to batch. This scale consists of the weighing machine body, the scale-pan, hook, adapters and operating manual.

Mil Thickness Gauge
(SE-321)

Ensuring correct mil thickness measurement of coating is vital for a pristine look and even finish. Can be used on ferrous metals such as cast iron, carbon steel and stainless steel, as well as non-ferrous metals like aluminum.

IWATA LPH80 LVLP GUN FEATURES



IWATA LPH80
(SE-138)

LVLP gun with spray characteristics:

- Features adjustable spray pattern from round to full fan shape.
- A stainless-steel nozzle, paint passage and heat tempered 0.8mm tip ensure long- lasting, peak performance spraying.
- Uses the reliable and easy-to-service cartridge-style "air-valve" set, which can be serviced outside the gun and easily placed back into the gun body.
- 4 oz. (110 ml) stainless-steel gravity cup is center-mounted and rotates, allowing for spraying.

Cerakote In Cup Mesh Strainers

Uniquely designed to fit in the cup of our IWATA LPH80 spray gun (SE-138). These strainers will fit inside a spray gun cup size of 2" to 2.375".

SE-275: 100 Mesh Strainer (**H-Series Only**)

SE-276: 150 Mesh Strainer (**H-Series Only**)

SE-277: 325 Mesh Strainer (**Elite Series Only**)

Cerakote Degrease Tank

The Cerakote Training Staff designed this high quality degreasing tank for functionality, ease of use and speed. This unique design allows for almost any firearm part to be degreased quickly and efficiently (SE-272).

Tank Features:

- Heavy duty basket features a unique handle design that functions as legs when the basket is lifted, allowing parts to drip dry back into the tank without any mess.

- Built in basket feet, suspends the basket off the tank bottom, keeping parts out of any solids.

- Drain plug allows the tank to be drained when needed.

- Lid with gasket reduces solvent evaporation.

- Quality, all metal construction (unfinished mild steel)

- Made in the USA

- Tank Dimensions 43.25"L x 8.25"W x 7"D

- Basket Dimensions 41.5"L x 6"W x 6"D

Find these supplies and more at Cerakote.com!

Cerakote® Training Program

Cerakote™ is a professionally applied OEM finish, it is not a DIY finish. NIC Industries offers the only one-on-one training program for Cerakote™ in North America. You will receive individual training at our state-of-the-art facilities in White City, Oregon. Our expert trainers will provide you the training you need for your industry. Each class is tailored to fit your needs to be successful at coating products in your industry. We regularly work with manufacturers, coating companies, OEMs, and a variety of custom shops.

What Will I Learn?

- **Correct Preparation by Substrate**
- **Various Methods of Degreasing**
- **Proper Racking**
- **Coating Selection**
- **Basic to Advanced Spray Gun Techniques**
- **In-Depth Application Methods**
- **Curing Procedures**
- **Stenciling & Camo Techniques**
- **Advice on Equipment & Operation**
- **Problem Solving & Troubleshooting**
- **Project/Job Costing**
- **Marketing Strategies**
- **Robotics & 3D Laser Imaging (by request)**
- **Overview of Cerakote Products**

For more information about the Cerakote Training Program, give us a call at 1-866-774-7628 or email us at CertifiedApplicators@Cerakote.com.

Class Location

Cerakote is located at 7050 Sixth Street, White City, OR, 97503. White City is located in Southern Oregon approximately 5 miles from Medford, Oregon, and approximately 280 miles from Portland, Oregon.

Transportation

Rogue Valley International Airport (MFR) is located 6 miles from our location and provides daily flights from several major west coast airports. All major rental car companies are located at the Rogue Valley International Airport.

Lodging

Cerakote has negotiated discounted rates with several hotels in close proximity to our facility. Information can be found at **www.Cerakote.com**

Training videos & more at YouTube.com/Cerakote

Need Help?

At any point during the Cerakote application you have a question, please contact us at:

Phone: 1-866-774-7628
Email: info@cerakote.com | Web: www.Cerakote.com

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Product Specific Application Guides and SDS Information Available at Cerakote.com

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