



# **Application Manual** **And Troubleshooting** **Guide**

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## Part Preparation

1. Thermal degrease or chemical degrease part.
2. Mask part with masking tape tolerant to grit blasting. Try to avoid silicone adhesives as they may contaminate the part.
3. Grit blast with 120 to 180 mesh clean aluminum oxide using a pressure blaster set at 60psi or greater until a complete "white" blast is achieved.
  - a. Keep the part in either the blast cabinet or spray booth until it is ready to be coated.
  - b. Do not let a blasted part set for more than 8 hours prior to coating. If so, blast again prior to coating.
4. Remove the masking tape and remask the areas to not be coated. DO NOT allow the adhesive of the masking tape to come into contact with areas of the part to be coated as this will cause contamination and separation of the coating.
5. When ready to coat, remove excess grit from blasting by brushing the part lightly with a new, clean, bristle paint brush followed by high pressure air blast with clean, oil-free air.

## Application of basecoat (Aseal 519)

1. Shake or stir the Aseal 519 until all of the aluminum powder is fully in suspension. This is evidenced by no gray streaks on the side of the container, or by pouring the contents of the container into another clean container and observing for lumps.
2. Fill the spray pot about half full and set the fluid flow on the gun to match what is needed for the part to be sprayed. Larger and less complex parts can use a higher fluid flow and larger fan setting. More complex parts must use a lower fluid flow and tighter fan. The optimal procedure is to screw the fluid valve completely closed, then open by ½ to one turn at a time until the desired flow is achieved. Optimal air pressure for spraying is 40 psi. The recommended spray gun is a DeVilbiss EGA-503 with a .390 tip.
3. Place the parts to be sprayed at the back of the booth and spray towards the front of the booth. It is important that overspray or mist does not come into contact with parts other than the one currently being coated. If using a rack to hold multiple parts, do not place more parts in the rack than can be sprayed in 30-40 minutes time.
4. Begin spraying the part with a light "mist" coat such that the coating is not wet and glossy, but is slightly evident on the surface of the part. Spraying should be done in a smooth and consistent manner, making complete passes over the part, and only releasing enough pressure of the trigger at the end of each pass to stop fluid flow, but to keep air flow steady.
5. Be sure to include a pass over all edges and surfaces to be coated. Be careful to aim the spray at such an angle as to preclude accumulation of overspray on other surfaces of the part, which could lead to excess film thickness, blistering, sagging, or flaking.

6. After the “mist” coat is complete, using slower passes, apply one heavy coat to the part. Apply the coating only until it is an even wet gloss with a green/gray appearance. If any areas look rough, apply a little more until a smooth and glossy appearance is achieved. Make the final spray pass perpendicular (90 degrees) to the initial spray pass to even the spray lines.
7. If any craters, fisheyes, or separation is observed:
  - a. Stop spraying
  - b. Wash the part with water (collect the run-off for proper disposal). Rub with a clean cloth or gloved hand to remove excess coating and rinse with water again.
  - c. Dry the part with clean air
  - d. Lightly blast to clean the part
  - e. Follow the cleaning procedures for after blasting and respray the part.
8. If spray mist begins to build in the booth, take a short break from spraying to allow evacuation of the mist and change booth filters if necessary.

## Drying / Curing Procedure

1. Allow the coating to dry at ambient conditions in the spray booth for about 15 minutes or until all the parts turn a matte gray appearance. If after several minutes, it does not appear that the parts are drying and turning gray, it is an indication that humidity is too high for them to dry in ambient conditions. If the parts are not drying:
  - a. Heat the furnace to 150°F (65°C)
  - b. Move the parts from the spray booth to the oven, being careful to not touch the parts or allow dirt onto the wet parts.
  - c. Leave at 150°F (65°C) until a matte gray appearance, then remove masking and continue with cure cycle.

**NOTE:** If using a direct gas-fired furnace, it may be advantageous to preheat the furnace to ~150°F prior to placing any parts in the furnace. Gas can carry moisture which can cause the parts to sweat if they are placed in a cool furnace and then heat applied. The initial spike in humidity from the moisture in the gas will fade once the furnace has been run at temperature for a short time.

2. After the parts are a matte gray appearance, remove the masking tape, transfer to the oven and follow the specified cure schedule for that part. This will vary based on the size and configuration of the part.
3. Never leave the parts outside of the booth or furnace if they have been sprayed, but have not gone through the full cure procedure.

## Application of 2<sup>nd</sup> Basecoat (Aseal 519)

1. Allow the parts to cool to ambient temperature. Do not allow them to set for a prolonged period exposed to outdoor conditions as this may lead to dirt contamination and difficulty applying the second coat.

2. Mask any areas of the part that are not to be coated.
3. Apply the 2<sup>nd</sup> coat in the same manner as the first.
4. If any contamination, separation, cratering, or fisheyes is observed, the part may be washed using the same procedure as for the first coat. Instead of grit blasting with coarse media after washing, use 325 mesh powder at low pressure, such as is used prior to application of the sealer / topcoat.
5. After a uniform and glossy (wet) appearance is achieved, follow the Drying / Curing Procedure as for the first coat.

## Preparation for Sealer / Topcoat (Aseal 598)

1. Allow the parts to cool to ambient temperature.
2. Burnish the parts with 325 mesh clean aluminum oxide using a pressure blaster set to about 20psi. The grit valve should be set to about 1/10 open and the largest nozzle should be installed.
3. Use a distance of about 20cm from the part and move the nozzle in an even pattern over the part. The color of the part will lighten slightly while burnishing. DO NOT hold the nozzle in one area as this will cause a dark spot that will be noticeable through the topcoat. The more even the burnish, the more even the appearance of the topcoat.
4. After burnishing, check the resistance of the parts using an ohmmeter. If not in specification (usually less than 10 ohms), burnish again until the specification is met.
5. Mask the areas to not be coated. DO NOT allow the adhesive of the masking tape to come into contact with areas of the part to be coated as this will cause contamination and separation of the coating.
6. When ready to coat, remove excess grit from blasting by brushing the part lightly with a new, clean, bristle paint brush followed by high pressure air blast with clean, oil-free air.
7. Mix the Aseal 598 Part A with the Aseal 598 Part B at a ratio of 10ml A to 1ml B. A typical mix would be 300ml of Part A and 30ml of Part B. Stir or shake well. **After A and B are mixed, do not use after 2 hrs have expired.**
8. Fill the spray pot about half full and set the fluid flow on the gun to match what is needed for the part to be sprayed. Larger and less complex parts can use a higher fluid flow and larger fan setting. More complex parts must use a lower fluid flow and tighter fan. The optimal procedure is to screw the fluid valve completely closed, then open by ½ to one turn at a time until the desired flow is achieved.
9. Begin spraying the part with a light “mist” coat such that the coating is not wet and glossy, but is slightly evident on the surface of the part. Spraying should be done in a smooth and consistent manner, making complete passes over the part, and only releasing enough pressure of the trigger at the end of each pass to stop fluid flow, but to keep air flow steady.
10. Be sure to include a pass over all edges and surfaces to be coated. Be careful to aim the spray at such an angle as to preclude accumulation of

overspray on other surfaces of the part, which could lead to excess film thickness, blistering, sagging, or flaking.

11. After the "mist" coat is complete, using slower passes, apply one heavy coat to the part. Apply the coating only until it is an even wet gloss with a yellow / orange appearance. If any areas look rough, apply a little more until a smooth and glossy appearance is achieved. Make the final spray pass perpendicular (90 degrees) to the initial spray pass to even the spray lines. The Alseal 598 is only applied at several microns and care must be taken to not allow build-up at the edges of the part.
12. If any craters, fisheyes, or separation is observed:
  - a. Follow the procedures for curing the topcoat.
  - b. Burnish with 325 mesh aluminum oxide powder until the sealer is removed and the part is an even silver appearance. (It is not necessary to recheck resistance)
  - c. Remask, clean off the grit, and respray the part.

### Drying / Curing Procedure for Topcoat / Sealer

1. Allow the coating to dry at ambient conditions in the spray booth for about 15 minutes or until all the parts are a dull luster. If after several minutes, it does not appear that the parts are drying, it is an indication that humidity is too high for them to dry in ambient conditions. If the parts are not drying:
  - a. Heat the furnace to 150°F (65°C)
  - b. Move the parts from the spray booth to the oven, being careful to not touch the parts or allow dirt onto the wet parts.
  - c. Leave at 150°F (65°C) for 10-15 minutes, then remove masking and continue with cure cycle.
2. After the parts have air dried, remove the masking tape, transfer to the oven and follow the specified cure schedule for that part. This will vary based on the size and configuration of the part.

### Optional 2<sup>nd</sup> Topcoat / Sealer (Alseal 598)

1. If a darker and more even topcoat appearance is desired:
  - a. Burnish with 325 mesh aluminum oxide powder until the sealer is removed and the part is an even silver appearance. (It is not necessary to recheck resistance)
  - b. Remask, clean off the grit, and respray the part.
  - c. Follow standard Topcoat / Sealer curing procedures.

## Troubleshooting Chart

<u>Problem</u>	<u>Cause</u>	<u>Remedy</u>
Alseal 519 looks like it's crawling or separating during application	Surface contamination of the part	Wash part with water, reblast, respray.
	Oil or water in air supply	Wash part with water, reblast, check and drain oil and water filters, respray.
Alseal 519 is sagging or running during application	Coating is being applied too thick –or- humidity is very high	Lower fluid flow or spray time to reduce amount of coating applied.
Alseal 519 is not turning a glossy gray/green during application	Coating is being applied too thin –or- humidity is very low	Increase fluid flow or spray time to increase amount of coating applied.
Alseal 519 is very rough after curing	Overspray is landing on parts during application	Change booth filters; move parts to back of booth and spray towards front of booth; spray less parts at one time.
	Coating is applied too thin	Increase fluid flow or spray time to increase amount of coating applied.
	Part is contaminated	This should be evident during spraying. Grit blast to remove basecoat and apply new basecoat.
Alseal 519 is flaking or easily removed after curing	Coating is applied too thick	Lower fluid flow or spray time to reduce amount of coating applied.
Alseal 598 looks like it's crawling or separating during application	Surface contamination of the part	Cure the coating, blast off with 325 mesh aluminum oxide, respray.
	Oil or water in air supply	Cure the coating, blast off with 325 mesh aluminum oxide, respray. Check and drain oil and water filters, respray.

<p>Alseal 598 is sagging or running during application</p>	<p>Coating is being applied too thick –or- humidity is very high</p>	<p>Lower fluid flow or spray time to reduce amount of coating applied.</p>
<p>Alseal 598 is flaking or easily removed after curing</p>	<p>Coating is applied too thick</p>	<p>Lower fluid flow or spray time to reduce amount of coating applied.</p>
<p>Alseal 598 is a beige color instead of green after curing</p>	<p>Coating was exposed to high humidity for too long after application</p>	<p>Cure the coating, blast off with 325 mesh aluminum oxide, respray. Place part in 150°F (65°C) furnace shortly after spraying.</p>
	<p>Coating is applied too thick</p>	<p>Lower fluid flow or spray time to reduce amount of coating applied.</p>