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**APV ENGINEERED COATINGS
ASC 2-N STRIPPING OF ALUMINIDE COATINGS
FROM NICKEL AND COBALT BASE SUPER ALLOYS**

Preparation of Stripping Bath:

The ASC 2-N stripping solution should contain 1.5% ASC 2-N and 8% Nitric acid. The solution is prepared by first dissolving the ASC 2-N in water followed by the addition of technical grade nitric acid.

	<u>1 liter bath</u>	<u>1 gallon bath</u>
ASC 2-N	15 g	57 g
67% Nitric Acid	119 g (85cc)	450 g (320 cc)

In all cases the ASC 2-N should be first dissolved in most of the water followed by the addition of Nitric acid and final dilution to 1 liter or 1 gallon with water.

Stripping Procedure

1. The vanes or blades removed from the engine are first sandblasted with 220 grit aluminum oxide to remove all visible oxide and other hot corrosion products. In the case of blades it is best not to sandblast the root section, since the oxide will give some protection to the surface during the stripping action.
2. The hardware can be loaded into a perforated polypropylene basket that in turn is lowered into a polypropylene tank. The solution is best agitated by bubbling air into the solution so that the solution will effectively reach all surfaces of the parts. Periodic movement of the basket up and down in the tank will also facilitate coating removal.
3. The roots of all blades should be wax masked before stripping to assure no attack on these uncoated surfaces. The stripping solution is best maintained between 70-90°F to assure good stripping without attacking the base metal. Nickel base alloys with lower chromium content such as B1900 are particularly vulnerable to IGA attack when exceeding 90°F. Cobalt base alloys, which contain higher chromium content, are far less vulnerable to attack even when the solution is heated above 100°F. When the temperature of the stripping solution is below 60°F (winter time), the stripping action is slow and will not effectively remove the coating.
4. The optimum stripping cycle consists of immersing the parts in the stripping solution for 30 minutes, followed by rinsing in water and then ultrasonic cleaning in water with a small amount of wetting agent or drying followed by sand blasting to remove the loose corrosion products. A few 30-minute immersions might be required, particularly for the heavier coatings to completely remove all of the coating.
5. In some cases with parts seeing higher temperature exposure, it is more effective to use first a solution of ASC 2-N as described above followed by an immersion in straight 25% Nitric acid at 70-100°F for 30 minutes followed by rinsing, drying and sandblasting. The straight nitric acid is more effective in stripping off lower aluminum containing coatings due to diffusion of the aluminum further into the hardware surface. Again multiple stripping cycles using the ASC 2-N and straight nitric acid might be required to completely remove all of the coating.
6. Due to the dilution factor of the stripping solutions, we advise disposal of the solution after one or possibly two uses. Replenishing the used solution with additional ASC 2-N and Nitric acid will not restore the activity of the solution to that of a freshly-made bath and proper stripping action may not occur. With this in mind, we advise the make-up of small volumes of stripper solution to accommodate single batches of parts.