

Insta-Blak® A-385

Room Temperature Blackening Solution for Aluminum

The **Insta-Blak A-385** liquid concentrate is diluted with water and used as an immersion blackening solution for aluminum and its alloys. Used full strength, the concentrate may be applied by swab-on techniques for blackening engravings, etchings, prototype parts or for the quick touch-up of scratched or re-machined black anodized surfaces.

The black finishes are of negligible thickness. Therefore, they produce essentially no dimensional changes in the finished part.

Use **Insta-Blak A-385** anywhere. No special equipment, control procedures, ventilation or heating.

Vary color from rich pewter gray to deep black by dilution and dwell time. Results are uniform, consistent, repeatable...stable under lacquer...colorfast through age or sunlight.

Leave finish jet black to replace anodizing...or relieve and highlight to simulate pewter. Seal or lacquer for added richness and abrasion resistance.

Blackens castings that cannot be anodized.

Can replace anodizing where metal-against-metal abrasion resistance is not required.

Noncaustic - an odorless preparation of mild, water-soluble chemicals.

EQUIPMENT REQUIRED

Acid-resistant tanks, tumbling barrels, baskets, hooks and racks must be used with the **Insta-Blak A-385** solutions. Polypropylene or PVC dipping baskets, polypropylene rotating barrels, plastic lined or rubber lined tanks and plastic-coated hooks and racks are suitable.

IMMERSION FINISHING PROCEDURE

Items to be blackened must be thoroughly cleaned and deoxidized. Some experimentation should be done with properly prepared sample parts to determine the degree of cleaning and deoxidizing required to produce a uniform black finish.

Items to be blackened are contained in plastic dip baskets or hung on plastic coated racks or hooks, depending upon the shape, weight, and production requirements. Rotating (1 to 2 RPM) perforated plastic barrels are recommended for processing large volumes of small parts. If dip baskets or racks are used, the parts should be agitated when first introduced into each solution and water rinse to break air bubbles and to assure uniform solution contact with all surfaces. When processing parts in a dip basket, agitate or shake parts several times during the immersion to avoid nesting of the parts and the possibility of a non-uniform finish.

1. The aluminum surfaces to be finished must be free of oils and other soils as well as free of oxides prior to blackening and they may be removed either mechanically or chemically.

A. Mechanical Preparation

Sand or glass bead blasting is an excellent method of cleaning and deoxidizing aluminum surfaces prior to blackening and will produce a non-reflective, very uniform and adherent black finish.

B. Chemical Preparation

E-Kleen SR 148-E is used at 5 to 12% by volume in water at temperatures of 100-170°F to clean aluminum surfaces without etching.

E-Kleen 163A is used at 5 to 15% by volume in water at a temperature of 120-200°F will clean with a slight etch of the aluminum surfaces. Surface irregularities from rolling, drawing and extrusion operations, non-metallic inclusions or alloy variations can be reduced or eliminated by etching of the aluminum surfaces.

E-Kleen 163 is used at 5-15% by volume in water at a temperature of 120-200°F to clean with only a mild etch of the aluminum surfaces.

Please see the technical data sheets for **E-Kleen SR 148-E**, **E-Kleen 163-A**, or **E-Kleen 163** for more complete directions.

2. Rinse for a minimum of 30 seconds in a bottom fed overflowing cold water rinse tank to remove residual blasting dust or cleaning solutions.
3. Blacken at room temperature in an **Insta-Blak A-385** solution. Prior to charging a production tank, some experimentation should be performed with properly prepared sample parts, using various dilutions of **A-385** concentrate (1 to 5 parts water) and different immersion times to determine the conditions and parameters required to produce the desired depth of black. As a starting point, dilute one (1) part **Insta-Blak A-385** concentrate with one (1) part water. Determine by test the shortest immersion time necessary to produce the desired finish - usually 30 to 90 seconds. Required immersion times can be shortened or lengthened by varying the amount of

water. Immersing the parts for an excessive amount of time will not increase the depth of blackness and may result in the formation of an undesirable smut or rub-off.

4. Rinse for a minimum of 30 seconds in a bottom fed overflowing cold water rinse tank.

To enhance the depth of black, seal and impart corrosion resistance to the finish, immerse the parts while still wet from the preceding rinse in **EPI's E-Tec 502** for a slightly oily finish, **E-Tec 504** for a soft, dry finish or **E-Tec 520** for a hard, dry finish. For architectural finishes use **E-Tec 520**, **E-Tec 521** and **RENWAX**.

SWAB-ON, TOUCH UP TECHNIQUES

1. Clean and deoxidize the surfaces in one of the ways mentioned above. Abrasive paper or steel wool may be used to deoxidize small areas.
2. Rinse the area thoroughly with water.
3. Apply full strength **Insta-Blak A-385** generously with a swab, brush or sponge. Allow the blackening reaction to proceed for 30 to 90 seconds.
4. Rinse area with running water or sponge area with a damp sponge. Hot water will accelerate drying.
5. Air dry or wipe dry.
6. Buff with a cloth or brush to remove any adhering, powdery spent chemicals.
7. Repeat steps 3, 4, 5 & 6 if a darker finish is desired.
8. Apply one of the **EPI E-Tec** sealants as listed in 5 above.

Note: With black anodized surfaces it is possible to see scratches and nicks which have not cut completely through the anodized oxide finish to the base metal. **Insta-Blak A-385** will only react with the base metal. Therefore, after cleaning the scratched area, the scratch or damaged area should be scraped with a hard, pointed scribe to remove the oxide.

SOLUTION MAINTENANCE - IMMERSION TANKS

A recirculating pump, which will also provide solution agitation if the rate of flow is sufficient, is recommended with an in-line filter for long term or high-production baths. This will remove insoluble solid contaminants as well as aluminum salts, which eventually build up and precipitate. (An alternative is to allow the solids to settle and transfer the solution to an empty standby tank or plastic-lined drums and reuse to dilute fresh concentrate when recharging the tank.)

The blackening process is a chemical reaction between the solution and aluminum surface. Chemical activity is gradually diminished as the solution is used but may be restored to desired strength by adding fresh **A-385** concentrate. When immersion time necessary to produce the desired depth of black increases, add sufficient **A-385** concentrate to reduce immersion time to your previous standard. Keep a record of additions and number of parts processed to establish a bath history. By calculating the square feet of metal surface to be blackened per hour or per shift, you can determine the proper time for replenishing. Life of the solution will be reduced by immersing parts longer than necessary.

Solutions can be stored indefinitely in closed containers without loss of strength. When not in use, open tanks of solution should be covered to minimize contamination and evaporation of water. If considerable water does evaporate, make-up water can be added. The addition of fresh concentrate will make up for volume loss from normal water evaporation. The active chemicals will not evaporate. The solution is depleted only through use. Immersion solutions can be kept at optimum strength indefinitely with only periodic filtering or sludge removal.

CAUTION

The **Insta-Blak** concentrate and solutions are mildly acidic. Avoid contact with eyes, skin and clothing. Wear eye protection (glasses, goggles or face shield), protective rubber gloves and aprons, when preparing solutions and while working with the solutions. Do not mix the **Insta-Blak** concentrate or solutions with alkaline materials, or any other chemical substances. The **Insta-Blak** solutions are toxic if taken internally.

Do not work with the **Insta-Blak** solutions or other materials without first reading and understanding the **SAFETY DATA SHEET** furnished by **EPI**.

PACKAGING

One (1), 5-, and 55-gallon non-returnable containers.

IMPORTANT NOTICE! For Industrial Use Only

The following is made in lieu of all warranties, expressed or implied, including the implied warranties of merchantability and fitness for purpose: seller's and manufacturer's only obligation shall be to replace such quantity of the product as proved to be defective. Before using, user shall determine the suitability of the product for its intended use, and user assumes all risk and liability whatsoever in connection therewith. **Neither seller nor manufacturer shall be liable either in tort or in contract for any loss or damage, direct, incidental or consequential, arising out of the use or the inability to use the product.**

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