

Insta-Blak® A-380

Room Temperature Blackening Solution for Aluminum

Insta-Blak A-380 liquid alkaline concentrate is diluted with three (3) parts of water to produce a 25% by volume working solution. Aluminum objects are blackened by immersion for 30 seconds to 2 minutes in a 60°F to 80°F solution. The solution temperature should not be allowed to go over 85°F because etching of aluminum surfaces may occur.

Equipment Required

Plastic tanks, tumbling barrels, racks, hooks and baskets must be used with the **Insta-Blak A-380** solution. Polypropylene, polyethylene or PVC dipping baskets, polypropylene rotating barrels, plastic or rubber lined steel tanks and plastic coated hooks are suitable for use with **Insta-Blak A-380** solutions, and the acidic **E-Kleen 154** and **E-Pik 210** solutions used in the process. Mild steel tanks may be used for the **E-Kleen 102** and **E-Kleen 163** cleaning solutions, cold water rinses and the **E-Tec** sealant solutions.

Mild steel electric immersion heating elements may be used with the **E-Kleen 102** and **E-Kleen 163** solutions. Quartz or stainless steel electric immersion heaters are recommended for the acidic **E-Kleen 154** and **E-Pik 210** solutions.

The hot alkaline cleaning solutions and acidic deoxidizing solutions must be exhausted.

Finishing Procedure: Extrusions and Wrought Alloys

1. **Clean:** Parts must be thoroughly cleaned and degreased for 5 to 10 minutes in a hot (150°F to 170°F) solution of **EPI's E-Kleen 102** for a heavy etch while cleaning or a hot solution of **E-Kleen 163** for a very mild etch while cleaning.
2. **Rinse:** Using a bottom-fed, overflowing cold water rinse for 30 seconds to 1 minute.
3. **Deoxidize:** Immerse parts for 5 minutes in a solution of **EPI's E-Pik 210** maintained at 65°F to 80°F or with a 1 to 5 minute immersion in 40% by volume Nitric Acid solution.
4. **Rinse:** Using a bottom-fed, overflowing rinse tank for 30 seconds to 1 minute.
 - (a) Optional surface conditioning in **E-Prep 280 NCZ** for a more uniform black finish depending upon the alloy. Please see **E-Prep 280 NCZ** Technical Data Sheet.
5. **Blacken:** Immerse parts in 25% by volume room temperature solution of **Insta-Blak A-380** for the length of time necessary to produce a uniform black finish (usually

within 30 seconds to 2 minutes depending upon the alloy). Rotating perforated barrels are recommended for processing small parts. If dip baskets are used, the parts should be agitated when first introduced into the solution to break air bubbles and to assure solution contact with all surfaces.

Prolonged immersion times in the **Insta-Blak A-380** solution will result in a rough non-adherent finish and may also cause excessive etching of the part.

The temperature of the **Insta-Blak A-380** solution must be kept below 85°F and a solution chiller may be required.

6. **Rinse:** Using a bottom-fed, overflowing rinse tank for 30 seconds to 1 minute.
7. **Seal:** Immerse the parts, while still wet from 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**.

Finishing Procedure: Die and Sand Cast Aluminum - Also Small Machine Parts, Grommets and Screws

1. **Clean:** Immerse parts for 2 to 5 minutes in a 10% to 20% by volume solution of **EPI's E-Kleen 154** maintained at 65°F to 100°F.
2. **Rinse:** Using bottom-fed, overflowing rinse tank.
 - (a) Optional surface conditioning in **E-Prep 280 NCZ**. See **E-Prep 280 NCZ** Technical Data Sheet.
3. **Blacken:** Immerse parts in a 25% by volume room temperature solution of **Insta-Blak A-380** for the length of time necessary to produce a uniform black finish (usually within 30 seconds to 2 minutes depending upon the alloy). Rotating perforated barrels are recommended for processing small parts. If dip baskets are used, the parts should be agitated when first introduced into the solution to break air bubbles and to assure solution contact with all surfaces.

Prolonged immersion times in the **Insta-Blak A-380** solution will result in a rough non-adherent finish and may also cause excessive etching of the part.

The temperature of the **Insta-Blak A-380** solution must be kept below 85°F and a solution chiller may be required.
4. **RINSE:** Using a bottom-fed, overflowing rinse tank.
5. **SEAL:** Immerse the parts, while still wet from 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**.

SOLUTION REPLENISHMENT AND MAINTENANCE

The blackening solution is gradually depleted with use but may be replenished indefinitely with periodic additions of **Insta-Blak A-380** concentrate. The frequency of additions will depend upon the volume of work processed. For optimum results the solution should be maintained at 80% of its original strength or greater and frequent small additions are recommended.

The strength of solution and the amount of concentrate to be added is determined by the following titration procedure:

1. Pipette a 2 ml sample of **Insta-Blak A-380** working solution into a 250 ml Erlenmeyer flask.
2. Add 100 ml of distilled or D.I. water.
3. Add 10 ml Ammonium Hydroxide (conc.) and 1/4 tsp. Ammonium Chloride
4. Add a small amount Eriochrome Black T (approx. 1/4 gram). At this point the solution will be a red/violet.
5. Add 5 ml of 37% Formaldehyde.
TITRATE IMMEDIATELY with 0.1M EDTA to a blue endpoint.

CALCULATION: mls of 0.1M EDTA x 3.85 = % of A-380

REAGENTS

0.1M EDTA - Weight out exactly 37.2398 grams of Ethylene Diamine Tetra Acetic Acid, Disodium salt and dissolve in distilled water. Dilute to total volume in a liter volumetric flask.

ERIOCHROME BLACK T INDICATOR - Weigh out 1 gram Eriochrome Black T powder and weigh out 100 grams Sodium Chloride powder. Mix the two powders very thoroughly.

CAUTION

The **Insta-Blak A-380** solution is highly alkaline. Avoid contact with skin, eyes and clothing. A full-face shield, rubber gloves and rubber apron must be worn when mixing the solution or while working with the solution.

In case of contact immediately flush skin or eyes with running water for at least 15 minutes. For eyes, obtain medical attention.

Before using **Insta-Blak A-380** or other **EPI** products in the process, the **MATERIAL SAFETY DATA SHEET** for each product must be read and the specific instructions and precautions followed to assure correct use and personal safety.

Avoid contact of **Insta-Blak A-380** concentrate and working solution with acidic materials.

Do not mix **Insta-Blak A-380** with any other chemicals or solutions.

PACKAGING

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

IMPORTANT NOTICE! For Industrial Use Only



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TECHNICAL DATA

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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