

# PLATING RESOURCES, INC.



*"Surface Finishing Technology"*

## Ano Best 104

### Description

Ano Best 104 is used as a Lead Anode Cleaner in chromium plating operations. Ano Best 104 is a white granular product that dissolves easily in water. It is used to remove discoloration, oxides and scale from lead and lead alloy anodes.

### Advantages

- **Removes insulating anode coating and scale.**
- **Improves throwing power and distribution.**
- **Increases deposition rate and reduces pitting.**
- **Promotes faster trivalent re-oxidation.**
- **Increases life on tank type and conforming anodes.**
- **Rectifier or electricity is not needed.**
- **Easy, fast and economical to use.**

**IT IS GOOD PRACTICE TO CLEAN ANODES ON A REGULAR BASIS.**

### Mechanism

Anodes that are properly maintained will have a brown - black peroxide film. This film protects anodes from attack and provides a surface for the re-oxidation of trivalent chrome. If left standing in the chrome bath too long during down times or if correct anodes to cathode ratios are not maintained, these anodes can become heavily coated with lead oxides and lead chromate. This yellow coating acts to partially insulate the anode, becoming thicker and more insulating with time. This interferes with the normal distribution of chrome deposited on parts and serious irregularities in quality and thickness of the deposit will result.

To prevent this, anodes should be cleaned at regular intervals or whenever this yellow film does not disappear after a sufficient period of re-electrolysis. Ano Best 104 is a simple soak process which removes these coatings without harm to the anodes.

### Cleaning Frequency

The best time to clean anodes is immediately after use, then place the anode in storage if not for immediate reuse. When reusing, electrolyze as soon as is practical to re-establish the brown - black peroxide film.

### Operating Conditions

Concentration: 32.0 oz. /gal. (2# /gal.)  
Temperature: 70 - 160° F  
Time: 10 - 60 minutes, typical

## **Equipment & Procedures**

Ano Best 104 solutions may be used in plain steel tanks; linings are not necessary. Heaters, if used, may also be of plain steel, although stainless steel is generally preferred to prevent rusting above solution level. Adequate exhaust ventilation is necessary in order to remove the light mist generated during the cleaning operation. Adequate rinsing should be used both before and after Ano Best 104 cleaning. The Ano Best 104 is somewhat viscous so all rinsing must be thorough. A mild air agitation will provide the optimum conditions of use. Agitation should especially be used when making additions to the bath. Ano Best 104 is designed for use with air agitation.

## **Bath Make-Up**

The following procedures should be used for a new bath make-up. Fill the tank about 3/4 full with cold tap water, do not use warm water. Cautiously dissolve 32 oz. /gal. (2#/gal.) of the Ano Best 104 compound. The Ano Best 104 material must be added slowly to avoid localized overheating. This material generates heat (exothermic) when being dissolved. Break up any lumps in the product due to moisture and avoid any splashes. Stir thoroughly or use mild air agitation, when making addition. Add additional tap water to the proper operating volume. When all of the material has been added, continue stirring or agitating for 10 - 15 minutes longer. Heat the bath to its operating temperature while continuing the agitation. The bath is now ready to use.

## **Cleaning Procedure**

The following procedure should be used. Remove the lead anodes from the chrome plating bath. Rinse thoroughly with water over the bath or in a recovery type rinse tank. Immerse the anodes in the Ano Best 104 solution. Leave them immersed until the film or scale is completely removed, typically 10 - 60 minutes. Remove the anodes when clean and wire brush lightly, if needed, while rinsing. Provide a thorough final water rinse.

**NOTE:** Ano Best 104 is safe for pure lead, 6% antimony-lead, 7% tin-lead and variations of these alloys. Ano Best 104 will not attack or dissolve lead or lead alloy anodes, only the scale. Anodes can, thusly, be safely left in the solution for extended periods of time. Stubborn - heavy scale may require longer immersion times and/or higher temperatures for complete removal. Wire brushing during the cleaning cycle may be required in severe cases.

## **Solution Additions**

The Ano Best 104 can be controlled by analysis if desired. Usually, however, all that is necessary is to make a 4.0 oz. /gal. addition (25# / 100 gals.) whenever a noticeable decrease in the cleaning ability or rate is noticed. The Ano Best 104 bath enjoys an extremely long life. It seldom, if ever, requires discarding and remaking. Increasing the bath temperature within its range will increase a used bath's effectiveness and decrease the cleaning time.

## **Caution**

The plating bath contains chromic acid, sulfuric acid and the Dura additive outlined above. These are all industrial chemicals and must be handled carefully and in accordance with the directives provided in the individual SDS forms.

Read and understand the SDS on all of these chemicals before handling or using. Ensure that all regulatory standards are followed and limit personal exposure as required for Cr(VI) by OSHA.

Avoid personal contact with these chemicals, avoid splashing and avoid breathing any fumes released during operation. Do not inhale any dust, mist or vapors from these chemicals. Do not allow these products to contact the skin or eyes. In case of contact, flush immediately with large amounts of fresh water and seek immediate medical attention.

Wear protective clothing such as aprons, gloves, face masks and respirators. Be sure that adequate eyewashes and emergency showers are available nearby before handling or using any of these chemicals.

Designated work clothing should be worn while using these chemicals and the worker(s) should thoroughly shower and change into fresh-clean street clothing before going home. Decontaminate all work clothing before reuse.

The user is responsible for providing adequate work clothing, personal protection, and limiting personal exposure and providing any required clean-up, decontamination as well as any needed medical attention.