



## CAL 588

- ETCHES AND DESMUTS IN ONE APPLICATION
- WORKS AT ROOM TEMPERATURE
- SAVES PRODUCTION TIME AND ENERGY

Cal 588 is an acidic liquid, used by immersion for one-step etching, deoxidizing, and desmutting of aluminum alloys. Cal 588 will remove light shop soils, moderate to heavy oxides, mill markings, and fingerprints, preparing the surface for subsequent anodizing or the application of conversion coating and painting.

### OPERATING CONDITIONS

Concentration:	2-10% by volume
Temperature:	70° – 80° F
Time:	2-7 minutes

### TYPICAL PROCESS

The typical process may vary with the subsequent operation planned, but it usually includes:

1. Cal 588 immersion.
2. Cool, overflowing water rinse.
3. Conversion coating, anodizing, or other finishing.

### EQUIPMENT

Processing tanks may be rubber or polylines steel tanks or rigid polypropylene. Racks, baskets, and hanger must be constructed of material which is resistant to repeated immersion in an acid-fluoride, operating bath.

### INITIAL CHARGING PROCEDURE

1. Fill the tank to two-thirds the final volume with clean, cool water.
2. Add the required amount of the product slowly; agitate to mix thoroughly.

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3. Add cool water to increase the volume to the operating level.

## SOLUTION CONTROL

Material required:            25 ml. graduated cylinder  
                                       125 ml. Erlenmeyer flask  
                                       Indicator #2 (methyl orange)  
                                       Titrating solution #14 (1N Alkali)  
                                       Automatic burette assembly

Note: Operating solutions of Cal 588 will slowly etch glass. Use low-cost, expendable glassware and discard when etching interferes with readability or accuracy, or use plastic, which is resistant to fluoride attack.

### Titration Procedure:

1. Transfer 25 ml. of the bath into a 125 ml. Erlenmeyer flask.
2. Add 3-5 drops of Indicator #2 (methyl orange); the solution will turn red.
3. Titrate with Titrating Solution #14 (1N Alkali) until the color changes from red/salmon to yellow.

Concentration:    ml. of Titrating solution #14 (1N Alkali) required times the product factor, 1.02, equals the concentration in percent by volume of product in solution.

ml's T.S. #14	% by volume
2.0	2
3.9	4
5.9	6
7.8	8
9.8	10

## PRECAUTIONARY INFORMATION

The following suggestions for handling have been prepared in accordance with a pattern established by the American National Standards Institute, Publication ANSI Z 129.1 (1994).

Danger!	CONTAINS HYDROFLUORIC ACID CAUSES SEVERE BURNS WHICH MAY NOT BE IMMEDIATELY PAINFUL OR VISIBLE DO NOT GET IN EYES, ON SKIN, OR CLOTHING AVOID BREATHING VAPORS WEAR FACE SHIELD, GLOVES AND APRON WHEN HANDLING THIS MATERIAL WASH THOROUGHLY AFTER HANDLING
First Aid:	In case of contact, immediately flush eyes with plenty of water for at least fifteen minutes; ensure water flushing of entire surface of eye and lid. Obtain medical attention. Remove contaminated clothing promptly with assistance, if necessary; launder clothing before re-use.

## WASTE DISPOSAL

When it becomes necessary to discard the processing solution, neutralization of the acidity, precipitation of the phosphates, fluorides, and dissolved metals, and further treatment may be required to meet local state and federal waste control regulations. Your Cal Pac consultant will assist you in selecting the proper waste treatment products to efficiently fulfill these regulations.

## STORAGE

To meet pollution control regulations now being enforced by several states, we recommend that all chemical products be stored and used in locations which will not permit direct access to surface or sanitary drains. These areas should be constructed in such a manner that any chemicals lost can be either salvaged or suitably treated to prevent pollution of natural waters.

## PHYSICAL PROPERTIES

Appearance: Liquid, clear, Water White color

Density: 10 lbs/gal