



Florida CirTech
LEADERS IN PCB TECHNOLOGY

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DO 300 Non-Chromated Deoxidizer/Desmutter for Aluminum & Aluminum Alloys

I. DESCRIPTION

DO 300 is a highly concentrated and effective liquid chemical deoxidizer/desmutter especially designed for desmutting and deoxidizing all wrought and extruded aluminum alloys. **DO 300** does not contain chromates. The **DO 300** solution completely removes the smut and alloying constituents left by chemical etching or etch cleaning. The deoxidized surface is precisely prepared for spot welding, anodizing or for the application of a chromate conversion coating film.

II. OPERATING PARAMETERS

Concentration:	5 - 12% by volume
Temperature:	Ambient
Time:	30 seconds to 5 minutes
Agitation:	With clean compressed air will increase the efficiency and provide excellent bath life.

EQUIPMENT

Processing tanks racks and other equipment should be constructed of 300 series stainless steel; (Type 316 is preferable). Rigid polyethylene, polypropylene, PVC or Korseal lined tanks are also satisfactory. Titanium and aluminum hangers or racks may be used for fabricated work. The rinse tank following the bath should be made of the same materials.

III. PHYSICAL PROPERTIES

Appearance:	Amber yellow liquid
Odor:	Pungent acid scent
Density:	1.34 – 1.38 g/cc (11.2 to 11.5 lbs/gal)

IV. CONTROL PROCEDURES

PRODUCT FEATURES & BENEFITS

Highly Concentrated- **DO 300** is the most concentrated product of its type in the market place---normally used at 5-12% by volume.

Economical- When compared with plain nitric acid solutions, **DO 300** costs less to make-up and maintain while providing superior performance and much longer tank life.

Longer Tank Life- Air agitation activates and reactivates the **DO 300** solutions. Tank life is almost indefinite with periodic additions to maintain chemical concentrations.

Ecologically Compatible- **DO 300** does not contain any heavy metals, chrome or chromated products.

Complete & Rapid Deoxidization- of aluminum surfaces prior to etching, anodizing or chemical film conversion coating.

Complete & Rapid Desmutting- of aluminum surfaces following alkaline etching or etch cleaning.

Excellent for Resistance Welding- Provides surface deoxidation comparable to chromated products for excellent "Holdover" properties.

Versatile- **DO 300** can be used to deoxidize and desmut all wrought, extruded, sheet and forged aluminum alloys. **DO 300** is not recommended for cast aluminum alloys.

Etch Rate- of **DO 300** is approximately 0.00005 to 0.0004 inch/surface/hour on 2025-T3 clad aluminum. Maintain using replenisher or **DO 300** concentrate.

Maintenance- of **DO 300** and or etch rate via the use of product concentrate or ARP's product **EXTENDER**, an inorganic granular water soluble fluoride salt composition. Approximate addition of 0.6-1.2 grams/liter will increase etch rate approximately 0.0001 inch/surface/hour.

DO 300- has a high tolerance to control the build-up of soluble copper; up to 500 ppm.

Precise Control Procedures- are available to insure superior performance with maximum economy of operation.

V. ANALYSIS

1. Pipet a 10 mL sample of the bath into a 250 mL Erlenmeyer Flask.
2. Add 10 mL of 28% Potassium Iodide.
3. Add 10 mL of 50% Sulfuric Acid.
4. Titrate with 0.1 N Sodium Thiosulfate until a faint yellow color is seen.
5. Add 1 mL of Starch Indicator. The solution will turn to a blue/black color.
6. Continue titrating with Sodium Thiosulfate (0.1 N) until the dark blue colors fade to colorless or light yellow.
7. Calculation:
$$\text{DO 300 concentration (\% vol)} = (\text{mLs Sodium Thiosulfate } 0.1 \text{ N}) \times 0.67$$

VI. SAFETY AND STORAGE

DO 300 is a strong acid product containing nitric and sulfuric acids. It is **CORROSIVE TO ALL TISSUES**. Normal safety precautions for handling strong mineral acids should be observed, including gloves, eye protection, apron and other PPE. Additional handling and first-aid information is contained on drum labels in the MSDS bulletin.

VII. WASTE TREATMENT

Contact your FCT Water representative for waste treatment recommendations.

VIII. MISCELLANEOUS

Available in 5 gallon pails or 55 gallon drums.