



## Product Data Sheet

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Supersedes: NEW  
PRODUCT #: N8648

# VersaCLEAN™ 470

Acid Soak Cleaner

**DESCRIPTION:** Acidic solution used to clean metal surfaces. *VersaCLEAN 470* removes metal oxides, light oils and other organic contaminants. It is supplied in concentrated form and should be diluted with water, as specified below. *VersaCLEAN 470* can be followed by a microetch to achieve increased adhesion when needed.

**BENEFITS:**

- Concentrated formula provides extended bath life
- Effective at removing metal oxides, light oils and other organic contaminants.

**EQUIPMENT:**

Tanks should be constructed of PVC, polyethylene or polypropylene. Heaters should be constructed of Teflon®, stainless steel or titanium.

**MAKE-UP/  
OPERATING  
INSTRUCTIONS:**

**VersaCLEAN 470:** 8% by volume  
**Deionized Water:** 92%  
**Temperature:** 105 - 130°F  
**Immersion Time:** 2 - 5 minutes  
**Agitation:** Solution agitation in the tank will enhance the cleaning process.

**Procedure:**

1. Fill tank ¾ full with deionized water.
2. Add the required amount of *VersaCLEAN 470* and mix well.
3. Adjust to final volume with deionized water and mix well.

**CONTROL  
PARAMETERS:**

To achieve optimum results, the bath should be maintained at the following concentration

<u>VersaCLEAN 470</u>	<b>OPTIMUM</b>	<b>RANGE</b>
<b>VersaCLEAN 470 Concentration:</b>	8%	6-10%

**ANALYSIS &  
REPLENISHMENT:**

**ANALYSIS PROCEDURE FOR *VersaCLEAN 470***

**Determination of concentration of *VersaCLEAN 470***

**Equipment:**

25 ml pipette            250 ml Erlenmeyer flask or beaker  
50 ml buret

**Reagents:**

0.1N Sodium Hydroxide (NaOH) - Commercially available from chemical supplier.

0.1% Bromocresol Green indicator – 0.100 g in 14.3 ml 0.01 N NaOH. Dilute to 100 ml with D.I. water.

0.1% Methyl Red indicator – 0.100 g in 60 ml ethanol. Dilute to 100 ml with D.I. water.

**Procedure:**

1. Pipette 25 ml of working solution into a 250 ml Erlenmeyer flask. Add 100 ml D.I. water.
2. Add 3-5 drops of mixed indicator (equal volume of 0.1% Bromocresol green and 0.1% Methyl red) solution and mix.
3. Titrate with 0.1N NaOH until the solution turns from red to blue to green. The end point is the first appearance of permanent green. Record the number of mls.

**Calculation:**

$$\frac{\text{Mls of NaOH} \times \text{N of NaOH}}{\text{ml sample}} \times 140 = \% \text{ by volume } \textit{VersaCLEAN 470}$$

**Maintenance:**

$$[8 \% - \% \textit{VersaCLEAN 470}] \times \frac{\text{Tank vol(l)}}{100} = \text{add of } \textit{VersaCLEAN 470} \text{ in (l)iters}$$
  
from analysis

***BATH LIFE:***

Contamination build up limits bath life. The bath should be replaced when square footage of copper run through the bath exceeds 150 SSF/gallon.

***CAUTIONS:***

Avoid skin, oral and eye contact. Wear goggles and protective clothing when handling the liquid concentrate. Flush exposed areas immediately with water and consult a physician in case of injury. Refer to material safety data sheet for further information.

***WASTE DISPOSAL:***

The spent solution contains copper and should be pH adjusted between 6 and 8 and analyzed for copper. If the copper content exceeds allowable waste discharge limits, treat the solution to reduce copper content. Dispose of in accordance with federal, state, and local regulations.

This product should be used only for its intended purpose. The information stated above is based on our laboratory tests and experience, and is accurate to the best of our knowledge. Since actual use is beyond our control, the recommendations or suggestions are made without warranty, expressed or implied.