

# ARMAKLEEN® E-2002

By Nature, A Superior Aqueous Cleaner

## DESCRIPTION

**ARMAKLEEN E-2002** is an environmentally sensible, inorganic based, aqueous cleaner designed specifically for in-line or batch equipment used in cleaning electronic assemblies. The formulation has a rapid cleaning action, up to three times the rate of conventional cleaners providing a high production throughput. The product also produces a high level of solder joint brightness, even after extended washing times.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

## FEATURES AND BENEFITS

- Rapid cleaning rate. Greater production rates.
- No attack on solder. Bright solder joints.
- No VOC. Passes EPA emissions Test 24.
- Non-hazardous. No SARA 313 and WHMIS reporting requirements. Non-toxic.
- No Amines/Glycol Ethers. Enhanced worker safety.
- Non-Flammable. Safe in all cleaning equipment.
- No odor for operator comfort.
- Very low BOD/COD. Easy disposal.
- Inorganic chemistry. Simple waste treatment.

## APPLICATION GUIDELINES

**Process** - ARMAKLEEN E-2002 is supplied as a liquid concentrate and diluted in use with deionized water, typically 15% ARMAKLEEN E-2002 by volume. For optimum cleaning, actual concentrations will vary with the type of flux or solder paste:

**R, RMA, RA:** 14 to 16%

**OA, No-Clean:** 7 to 10%

**Operating Temperature:** The operating temperature range is 150 to 165 °F (65 to 75 °C).

After cleaning with ARMAKLEEN E-2002, parts should be rinsed using deionized water at 140 to 160 °F (60 to 70 °C).

Unlike amine based saponifiers, ARMAKLEEN E-2002 is not degraded at operating temperatures. Bath life is extended, and cleaning efficiency is maintained even after idle periods.

**Equipment** - ARMAKLEEN E-2002 can be used in most batch cleaning machines, however, in-line equipment using CPVC or PVC piping in the wash section should be avoided. Stainless steel is recommended for such pipework for any aqueous based cleaning machine.

**Control** - ARMAKLEEN E-2002 concentration in the wash bath is controlled by a simple titration. Consult your local sales or technical personnel if support is needed.

**Procedure**

1. Measure accurately 10mL of wash bath sample.
2. Add about 100mL of deionized water and mix.
3. Add 2 to 3 drops of Phenolphthalein indicator and swirl to pink color.
4. Titrate with 8N Hydrochloric acid until the pink color becomes permanently colorless.
5. Read percent concentration from the graph.

**TECHNICAL DATA**

Item	Typical Values	Item	Typical Values
Appearance	Clear	BOD	1,200 mg/L
Odor	None	COD	15,000 mg/L
pH 10% solution	10.9	Surface Tension	28 dynes/cm <sup>2</sup>
Specific Gravity (22 °C)	1.12	Flash Point	None
Shelf Life	720 Days		

**AVAILABILITY**

ARMAKLEEN E-2002 aqueous cleaner is available in 1, 5, and 55 gallon containers.

**SAFETY & WARNING**

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use. **Safety Data Sheets are available at [MacdermidAlpha.com/assembly-solutions/knowledge-base](http://MacdermidAlpha.com/assembly-solutions/knowledge-base).**

**STORAGE**

The product should be stored above freezing and less than 120 °F.

**CONTACT INFORMATION**

**To confirm this document is the most recent version, please contact  
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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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