ARMAKLEEN® E-2001P
By nature, a superior aqueous cleaner.

GENERAL DESCRIPTION
Armakleen E-2001P is an environmentally sensible, inorganic based, aqueous cleaner designed specifically for cleaning electronic assemblies in both batch and in-line equipment. The formulation provides a high level of solder joint brightness with very low foaming, even after extended washing cycles. Armakleen E-2001P is completely safe in cleaning equipment constructed with CPVC plastics.

FEATURES & BENEFITS
- No attack on solder. Bright solder joints.
- No VOC. Passes EPA emissions Test 24.
- Non-hazardous. No SARA 313 and WHMIS reporting requirements.
- 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.
- Very low foam. Easy to use in most equipment.
- Low viscosity. Easy to handle.
- No attack on CPVC. Suitable for use in most equipment.

APPLICATION GUIDELINES
PROCESS - Armakleen E-2001P is supplied as a liquid concentrate and diluted in use with deionized water, typically 10-15% Armakleen E-2001P by volume. For optimum cleaning, actual concentrations will vary with the type of flux or solder paste:

<table>
<thead>
<tr>
<th>Flux Type</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>R, RMA, RA</td>
<td>10 - 15%</td>
</tr>
<tr>
<td>OA, No-Clean</td>
<td>6 - 10%</td>
</tr>
</tbody>
</table>

OPERATING TEMPERATURE - The temperature range is 150 - 165°F (65 - 75°C).

Unlike amine based saponifiers, Armakleen E-2001P is not degraded at operating temperature. Bath life is, therefore, extended and cleaning efficiency is maintained even after idle periods.

TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Typical Values</th>
<th>Physical Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear to slightly hazy</td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
</tr>
<tr>
<td>pH 10% solution</td>
<td>11.3</td>
</tr>
<tr>
<td>Surface Tension</td>
<td>28 dynes/cm</td>
</tr>
<tr>
<td>Specific Gravity (22°C)</td>
<td>1.15</td>
</tr>
<tr>
<td>Flash Point</td>
<td>None</td>
</tr>
<tr>
<td>COD @ 10%</td>
<td>17,500 mg/L</td>
</tr>
<tr>
<td>BOD @ 10%</td>
<td>115 mg/L</td>
</tr>
</tbody>
</table>

CONTROL
Armakleen E-2001P concentration in the wash bath is controlled by a simple titration. The Hach Company Test Kit is recommended.

PROCEDURE:
1. Measure accurately 10ml of the wash bath sample.
2. Add about 100ml of deionized water and mix.
3. Add 2 - 3 drops of Phenolphthalein solution, swirl until pink color.
4. Titrate with 8N hydrochloric acid until pink color becomes permanently colorless.
5. Read percent concentration from the graph below.

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PACKAGING
ArmakleenE-2001P aqueous cleaner is available in 1, 5 and 55 gallon containers.

STORAGE & HANDLING
The product should be stored at room temperature above freezing and less than 120°F.

HEALTH & SAFETY
Armakleen RA aqueous cleaner has an HMIS rating of:
Health   0
Fire      0
Reactivity 0

It may be used safely in all types of plastic and stainless steel equipment.

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