Oakite® 90
Reverse current electrocleaner for steel and pure copper

PRIMARY APPLICATION

Oakite® 90 is a powdered alkaline material designed to anodically remove smut, oil and other shop soils from steel prior to plating. It is also applicable for reverse current cleaning of copper and copper plated steel. The material features high conductivity and long solution life.

Additionally, Oakite 90 is notable for its formation of a controlled foam blanket that traps annoying mist and vapors but does not trap ignitable gasses. Because Oakite 90 does not contain soap, there is no rinsing problem.

CHEMICAL CHARACTERISTICS

- Chemical composition: Blend of surfactants and alkalies including caustic soda, silicates and phosphates
- Physical form: As received: white powder as used: off-white solution
- Odor: Faint aromatic
- Bulk density: 1150 g/l (9.6 lb/gal)
- Hygroscopic tendency: Positive
- Foaming tendency: Controlled
- Recommended diluent: Water
- Maximum solubility: Up to 60 g/l at 21°C (8 oz/gal at 70°F) 120 g/l at 82°C (16 oz/gal at 180°F)
- Behavior in hard water: Flocculates
- Rinsability: Complete
- Biodegradable surfactants: Yes
- Phosphate-free: No

Normal working concentrations: 45 to 90 g/l (6 to 12 oz/gal)
Normal operating temperatures: 50° to 93° (120° to 200°F)

Rate of metal loss from 24-hour immersion in Oakite 90, 40 g/l (5.3 oz/gal) at 49°C (120°F), projected for one year, is as follows:

<table>
<thead>
<tr>
<th>metal (alloy)</th>
<th>mm/yr</th>
<th>in/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>steel (1010)</td>
<td>0.00</td>
<td>0.000</td>
</tr>
<tr>
<td>stainless steel (316)</td>
<td>0.00</td>
<td>0.000</td>
</tr>
<tr>
<td>aluminum (1100)</td>
<td>attack</td>
<td>attack</td>
</tr>
<tr>
<td>brass</td>
<td>0.05</td>
<td>0.002</td>
</tr>
<tr>
<td>copper</td>
<td>0.08</td>
<td>0.003</td>
</tr>
<tr>
<td>magnesium</td>
<td>0.05</td>
<td>0.002</td>
</tr>
<tr>
<td>zinc</td>
<td>0.58</td>
<td>0.023</td>
</tr>
</tbody>
</table>

APPLICATION PROCEDURE

Oakite 90 is applied in the range of 45 to 90 g/l (6 to 12 oz/gal) of water, 50°C to 93°C (120°F to 200°F) with reverse current of 5.4 to 10.8 A/dm² (50 to 100 A/ft²) 6 to 9 volts. Time of application is normally not critical and may vary from 30 seconds to 2 minutes.
Preparing Solutions: Fill tank to working level with cold water and slowly sprinkle in the required amount of Oakite 90, stirring well to avoid spattering. Then, heat solution to operate temperature. When making upkeep additions, let solution cool before introducing additional material. Do not add large amounts of dry powder to solution at any one time. Do not add to hot water or hot solution above 43°C to 49°C(110°F to 120°F)

SOLUTION CONTROL

Concentrations are titrated using Gardotest Procedure 92.
Sample Size: 5.0 mls Factor: 1.7

For free and total alkali, Gardotest Procedure 123. (See Procedure)

EQUIPMENT

Chemical Dispensing: The Chemetall Americas Slurry Feed System can be used to premix powdered products with water allowing them to become slurries. The slurries can then be fed into the process automatically with a process controller and/or the proper chemical feed pump. The system includes a slurry tank, tank stand, mixer and chemical feed pump. Please contact the Chemetall Americas Process Equipment and Engineering Department for specific recommendations.

NOTES ON USE (see Material Safety Data Sheet)

SAFETY AND HANDLING

Prior to handling and use of any of the materials referenced in this document, the Material Safety Data Sheets should be read and understood by all personnel in contact with these materials.

KEEP OUT OF REACH OF CHILDREN

STORAGE

Dry indoor storage at temperatures between 40°F and 100°F (4.4°C and 37.8°C) is recommended, away from any incompatible materials referenced in the Material Safety Data Sheets. All containers should be tightly closed when not in use.

DISPOSAL

Any disposal of the materials referenced in this document should be in accordance with all applicable federal, state, providential and local regulations. The process solution can contain components other than those present in the materials as supplied. Analysis of process solutions may be required prior to disposal.