

OAKITE® 160

POWDERED, ALKALINE ETCH FOR ALUMINUM

1 Description

Oakite® 160 is a powdered, caustic aluminum etchant for immersion application. It etches aluminum to eliminate surface imperfections and produce a matte, satin finish. A chelated product, it retards scale buildup in tanks and on heating coils and keeps it soft for easy disposal. Oakite® 160 rinses easily and forms a controlled foam blanket to minimize alkali mist and fumes.

Approvals

- ✓ Boeing BAC 5786
- ✓ Airbus UK ABP 8-2297, ABP 8-2301
- ✓ Saab STD 122701

Ask your Chemetall representative for a complete list of approvals.

2 Physical and chemical properties

Property	Typical Value																								
Appearance	Odorless white powder																								
Bulk density	1164 g/l (9.7 lb/gal)																								
pH (40 g/L @ 21°C)	13.3																								
Effect of working solutions on metals	Rate of metal loss from 24-hour immersion in Oakite 160, 40 g/l (5.3 oz/gal) at 40°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>attacks</td><td>attacks</td></tr><tr><td>brass</td><td>*0.03</td><td>*0.001</td></tr><tr><td>Copper</td><td>*0.00</td><td>*0.000</td></tr><tr><td>Magnesium</td><td>0.03</td><td>0.001</td></tr><tr><td>Zinc</td><td>2.94</td><td>0.116</td></tr></tbody></table> *discolors	Metal (alloy)	mm/yr	in/yr	Steel (1010)	0.00	0.000	Stainless steel (316)	0.00	0.000	Aluminum (1100)	attacks	attacks	brass	*0.03	*0.001	Copper	*0.00	*0.000	Magnesium	0.03	0.001	Zinc	2.94	0.116
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These are typical values only and do not constitute a specification.

3 Method of use

Oakite® 160 is used between 15 and 45 g/l (2 and 6 oz/gal) at temperatures between 21 and 71 °C (70 to 160 °F). Exposure time varies from 30 seconds to several minutes. Exact time, temperature and concentration will depend upon the degree of etch required.

Bath Initial Charge

Before initially charging the tank with Oakite® 160, make sure it is clean and free of debris. Fill the tank to about 90% of its capacity with room temperature water. Do not heat above 38°C (100°F). Slowly add the required amount of Oakite® 160 into the tank with mixing. Fill the tank to the operating level with water and raise the temperature of the solution to the operating temperature.

Caution: Adding Oakite® 160 powder to water will generate heat. Add Oakite® 160 powder slowly to water with good mixing. Be careful not to create localized overheating which could result in spattering. Do not add Oakite® 160 powder to hot solution. Never add water to Oakite® 160 powder.

Under certain operating conditions, new solutions may foam excessively. This can be controlled by reducing the concentration or lowering the temperature, or both.

Solution Measurement

Concentration: Gardotest Procedure 92, sample size 5 ml, factor 1.2

Etching Activity: Gardotest Procedure 17, sample size 5 ml, factor 0.74

Solution Replenishment

Replenish the bath with Oakite® 160 to maintain the concentration. As the aluminum content increases, the etch rate will decrease. It may be necessary to occasionally discharge part of the bath to reduce the aluminum concentration. Periodically the tank should be drained, the sludge removed, and the tank and heating surfaces descaled.

4 Equipment

For longest equipment life, stainless steel tanks and equipment are recommended, preferably types 304 or 316. Mild steel equipment can be used but will provide shorter life due to the corrosive nature of highly alkaline materials. Heating surfaces, pumps and valves should be constructed of stainless steel. As with any chemical, the materials described in this document must be used within the recommended operating ranges for these equipment recommendations to apply.

5 Shelf life, storage and disposal

Please refer to the corresponding Material Safety Data Sheets for details on shelf life, storage and disposal.

6 Labor and environmental protection

Before operating the process described it is important that this complete document, together with any relevant Safety Data sheets, be read and understood.

All local and national regulations on the transport, storage, use and waste treatment of chemicals in concentrated or diluted form and as working solutions must be obeyed.

7 General information

Chemetall supplies a wide range of chemical products and associated equipment for cleaning, descaling, paint and carbon removal, metalworking and protection and non-destructive testing. Sales Executives are available to advise on specific problems and applications.

The above details have been compiled to the best of our knowledge on the basis of tests and research work and with regard to the current state of our practical experience. This technical product information is non-binding. No liabilities or guarantees deriving from or in connection with this leaflet can be imputed to us. Statements relating to possible uses of the product do not constitute a guarantee that such uses are appropriate in a particular user's case or that such uses do not infringe the patents or proprietary rights of any third party. The reproduction of any or all of the information contained in this leaflet is expressly forbidden without Chemetall's prior written consent.

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