

Oakite Deoxidizer LNC

Non-chromated, liquid acidic material for deoxidizing and desmutting aluminum and aluminum alloys

PRIMARY APPLICATION

Oakite Deoxidizer LNC is a non-chromated, acidic material for removing oxides, alkaline etching smut and discoloration from aluminum and aluminum alloys. It is used before chromate conversion coating, non-chrome conversion coating, anodizing, electrical resistance welding, and other operations that require a very low level of surface contamination.

It performs well in hard water, requires no heat, deoxidizes rapidly and rinses freely. Oakite Deoxidizer LNC meets Boeing Process Specification BAC 5765, Cleaning and Deoxidizing Aluminum Alloys, and can be used to meet the requirements of SAE-AMS-W-6858, Welding, Resistance: Spot and Seam.

CHEMICAL CHARACTERISTICS

chemical composition	blend of iron salts, nitric acid and fluoride
physical form	as received: dark reddish-brown liquid as used: light yellow solution
specific gravity	1.433 at 20°C (68°F)
normal working concentrations	10 to 20% by volume
normal operating temperatures	ambient: 50° to 100°F (10° to 38°C)
pH at working concentrations	less than 1.0 at 10% by volume
effect of working solutions on metals	rate of metal loss from 24 hour immersion in Oakite Deoxidizer LNC, 20% by volume at 120°F (49°C), projected for one year, is as follows:

metal (alloy)	mm/yr	in/yr
steel (1010)	43.26	1.703
stainless steel (316)	0.00	0.000
stainless steel (403)	0.00	0.000
copper	44.53	1.753
brass	52.83	2.080
aluminum (3003)	23.27	0.916
magnesium	attacks	attacks
galvanized steel	attacks	attacks

APPLICATION PROCEDURE

Surfaces should be clean and free of organic contaminants. Immerse in a 10 – 20% by volume solution of Oakite Deoxidizer LNC at ambient temperature. Immersion time is normally 1 – 5 minutes. Process parameters will vary depending on the age of the bath and the degree of smut, oxidation or other contaminant on the surface. The solution should be air agitated. Rinse thoroughly in clean ambient temperature water.

A bath of Deoxidizer LNC has an etch rate on alloy 2024-T3 aluminum that ranges between 0.03 and 0.10 mils/surface/hour, depending upon the age and concentration of the bath.

SOLUTION CONTROL

Deoxidizer LNC should be monitored and replenished on a regular basis, for example daily, by the ferric iron titration. On a less frequent basis, for example weekly or monthly, Deoxidizer LNC should be monitored and replenished by the total acid titration.

Ferric Iron:

1. Place a 5 ml sample of the bath into an Erlenmeyer flask.
2. Add about 50 ml of deionized water.
3. Add 30 – 40 drops of Gardotest Indicator 195 (Sulfosalicylic Acid). The color will turn dark red.
4. Titrate with Gardotest Solution 90 (0.1M Versene) until the color turns yellow.
5. Percent by volume Deoxidizer LNC may be calculated by multiplying the milliliters used by 1.1.

Total Acid:

1. Place a 10 ml sample of the bath into an Erlenmeyer flask.
2. Add about 100 ml of deionized water.
3. Add about 10 ml of Gardotest Solution 10 (Potassium Fluoride).
4. Add 5 – 10 drops of Gardotest Indicator 2 (Phenolphthalein).
5. Titrate with Gardotest Solution 37 (1 N Alkali) until the solution turns from colorless to pink.
6. Percent by volume Deoxidizer LNC may be calculated by multiplying the milliliters used by 2.4.

REPLENISHMENT

Normal replenishment, based on the ferric iron titration is with additions of Deoxidizer LNC. As the bath is used, the total acid of the Deoxidizer LNC solution tends to decrease. For each percent by volume based on total acid, below the percent by volume based on ferric iron, add 9.5 gallons of Gardobond Additive H 7140/1 per 1000 gallons of bath.

NOTES ON USE

Tanks, piping and equipment should be constructed of alloy 316 stainless steel or lined with polypropylene, CPVC, PTFE (Teflon) or PVDF (Kynar) or other material as approved by the equipment manufacturer. Elastomer for pump and valve seals etc should be Viton. Keep concentrate away from combustible, organic and readily oxidizable materials. Avoid prolonged contact of concentrate with glass, ceramic or concrete. If contact is made, rinse surface thoroughly with water. Avoid contact or mixing with chlorine-releasing materials.

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 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, 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.

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