

Oakite ChromiCoat CLR

Liquid chromate conversion coating for aluminum and its alloys

PRIMARY APPLICATION

Oakite ChromiCoat CLR is a liquid chromate conversion coating for aluminum and its alloys. Applied by immersion or spray, it provides excellent paint adhesion and improved corrosion resistance. ChromiCoat CLR may be controlled to produce colorless coatings with low electrical resistance.

Oakite ChromiCoat CLR meets the following Military Specifications: MIL-C-81706 (Qualifying Specification for MIL-C-5541). Class 3, Form 1 (Liquid), Method C (Immersion).

CHEMICAL CHARACTERISTICS

chemical composition	acidic chromates, fluorides
physical form	as received: red orange liquid
as used:	orange solution
odor	none
specific gravity.....	1.029 at 20°C (68°F)
bulk density	8.6 lb/gal at 68°F
viscosity.....	2-6 cps, Brookfield Spindle 1, 60 rpm
flash point	none
foaming tendency	none (non-surfactant material)
recommended diluent	water
maximum solubility	complete
behavior in hard water	see operating procedure
rinsability	not applicable
biodegradable.....	not applicable (non-surfactant material)
phosphate-free	yes
normal working concentrations	3 to 8% by volume
normal working temperatures	70° to 120°F (21° to 49°C)
pH at working concentrations	2.3 to 2.9
effect of working solutions on metals.....	rate of metal loss from 24-hour immersion in

Oakite ChromiCoat CLR, 6% by volume, 49°C (120°F), projected for one year, is as follows:

metal (alloy)	mm/yr	in/yr
steel (1010)	0.150	0.006
stainless steel (304)	0.003	<0.001
stainless steel (316)	0.003	<0.001
stainless steel (410)	0.005	<0.001

(Not recommended for continuous contact with steel)

APPLICATION PROCEDURE

Operating temperatures and working concentrations for applying Oakite ChromiCoat CLR are largely determined by the type of coating desired and the application method employed.

Preparing the Solution

1. Fill the tank 3/4 full with water. See note on water quality.
2. Add the proper amount of ChromiCoat CLR for desired concentration.
3. Add water to complete filling tank.
4. Check ChromiCoat bath parameters.
5. Heat bath to desired operating temperature.

Note: Use of make-up of quality meeting ASTM B-449, Standard Practice for Chromate Treatments for

Aluminum, is recommended. Maximum limits of impurities:

Total dissolved solids 150 ppm

Chloride (as Cl⁻) 15 ppm

Sulfate (as SO₄⁻²) 25 ppm

When impurities in water exceed these limits, the ChromiCoat bath should be made up with deionized water.

Applying Oakite ChromiCoat CLR in accordance with MIL-C-5541, Class 3, Form 1, Method C (Immersion)

1. Clean with a non-etching alkaline detergent cleaner.
2. Rinse in cold running water; two separate rinses are desirable.
3. Deoxidize at ambient temperature.
4. Rinse in cold running water
5. Immerse in Oakite ChromiCoat CLR at 6 to 8% by volume, between 24° and 29°C (75° to 85°F) for 4 to 6 minutes. pH range is 2.3 to 2.5.
6. Rinse in cold running water.
7. Final Rinse: Deionized water.
8. Dry.

Applying Oakite ChromiCoat CLR on Aluminum by Tank Immersion (Non MIL-Spec Applications)

1. Clean and condition with an acidic, neutral or alkaline detergent (Aluminum Cleaners 164 and NST, and Oakite 61B are recommended).
2. Rinse in cold running water; two separate rinses are desirable.
3. Immerse in a solution of Oakite ChromiCoat CLR at 3 to 6% by volume, between 21° and 49°C (70° and 120°F) for 0.5 to 6 minutes. pH range - 2.3 to 2.9.
4. Rinse in cold running water.
5. Dry.

Applying Oakite ChromiCoat CLR on Aluminum by Spraying (Non MIL-Spec Applications)

1. Clean and condition with an acidic, neutral or alkaline detergent. (Oakite Aluminum Cleaner NSS is recommended).
2. Rinse with cold water.
3. Spray solution of Oakite ChromiCoat CLR at 3 to 6% by volume, between 21° and 49°C (70° and 120°F) for 0.5 to 3 minutes. pH range - 2.3 to 2.9.
4. Rinse in cold water spray.

5. Dry. Spray washers should have high volume, low pressure sprays to assure the formation of proper coatings. Four to eight psi is optimum.

Solution Control: For concentrations use Gardotest Procedure 137.

Sample Size: 50.0 mls Factor: 0.23

pH Control: Bath pH should be determined after titration and adjustment of concentration. pH may be measured using pH meter or special ChromiCoat pH test papers.

Should the pH of the Oakite ChromiCoat CLR rise above the 2.3 to 2.9 maximum, add 125 ml/100 liters (1 pint/100 gallons) of 42° Baume nitric acid to lower the pH 0.2 - 0.4 units.

EQUIPMENT

The Chemetall Oakite Chemical Metering Pump can be used to automatically maintain the make up chemical requirement of this product. If predilution is required, the Chemetall Oakite water driven Proportioners can be used to automatically feed the premixed solution of this product to the process tank. Please contact the Chemetall Oakite Process Equipment and Engineering Department for specific recommendations.

NOTES ON USE (See Material Safety Data Sheet)

Tanks, heating elements, pumps & piping should be constructed of 316 alloy stainless steel.

Safety and Handling Precautions: Oakite ChromiCoat CLR is a highly acidic material. It contains acidic chromates and fluorides. Direct contact causes severe burns that may or may not be immediately painful or visible. Harmful if swallowed or inhaled. Avoid contact with eyes, skin and clothing. Wear safety goggles, rubber gloves and other suitable protective clothing when handling. Wash thoroughly after handling. Avoid inhalation of mist. Use with adequate ventilation. Do not take internally.

First Aid in Case of Contact: In case of contact or suspicion of contact, prompt medical attention is absolutely necessary.

For **eyes**, immediately flush with cool water for 15 minutes to 30 minutes. Get prompt medical attention. For **skin**, immediately flush with large quantities of cool water until all acid is removed, paying particular attention to skin under nails. Immediately remove and wash contaminated clothing and shoes. Get prompt medical attention. For **ingestion**, rinse out mouth thoroughly with water. Give large quantity of water to drink without delay. Get prompt medical attention. For **inhalation**, remove from exposure. Get medical attention.

KEEP OUT OF REACH OF CHILDREN

DISPOSAL

Use method acceptable to all Federal, State and Local authorities for disposing of solutions containing fluoride, heavy metals and chromates.

SHIPMENT

May be shipped by any common carrier. Freight classification is "Corrosive Liquid, NOS, (Chromic acid), 8, UN1760 II". Product Code: 3505.

STORAGE

Store indoors at moderate temperatures, away from organic materials, oxidizable materials, reducing agents and chlorine-releasing materials, Keep drum covered when not in use. Do not expose to temperatures over 49°C (120°F).

effect of high temperature-storagenone below 49°C (120°F)
effect of low temperature storagenone, freezes at -6°C (21°F)
effect of agingmay form slight precipitate; will not
adversely affect performance-agitate or
roll drum to restore suspension

Oakite Products, Inc. warrants that the product or products described herein will conform with its published specifications. The products supplied by Oakite and information related to them are intended for use by buyers having necessary industrial skill and knowledge. Buyers should undertake sufficient verification and testing to determine the suitability of the Oakite materials for their own particular purpose. Since buyer's conditions of use of products are beyond Oakite's control, Oakite does not warrant any recommendations and information for the use of such products. OAKITE DISCLAIMS ALL OTHER WARRANTIES INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE IN CONNECTION WITH THE USE OF ITS PRODUCTS.

Chemetall
Oakite



ISO 9001:2000
FM 93653

Corporate Headquarters and Eastern Branch (800) 526-4473 • Central Branch (Midwest) (877) 941-3800
Western Branch (800) 331-1197 • Oakite Canada Limited (800) 668-4318
Chemetall Mexicana 011 52 55 5656 1490 • Chemetall do Brasil Ltda. (5511) 4066 8800
Website: www.oakite.com • E-mail: oakite.products@chemetall.com • Shop online at www.oakitestore.com

F.16577196
Printed in the USA