

EVERLUBE

Anti-Corrosion Coating

DATA SHEET

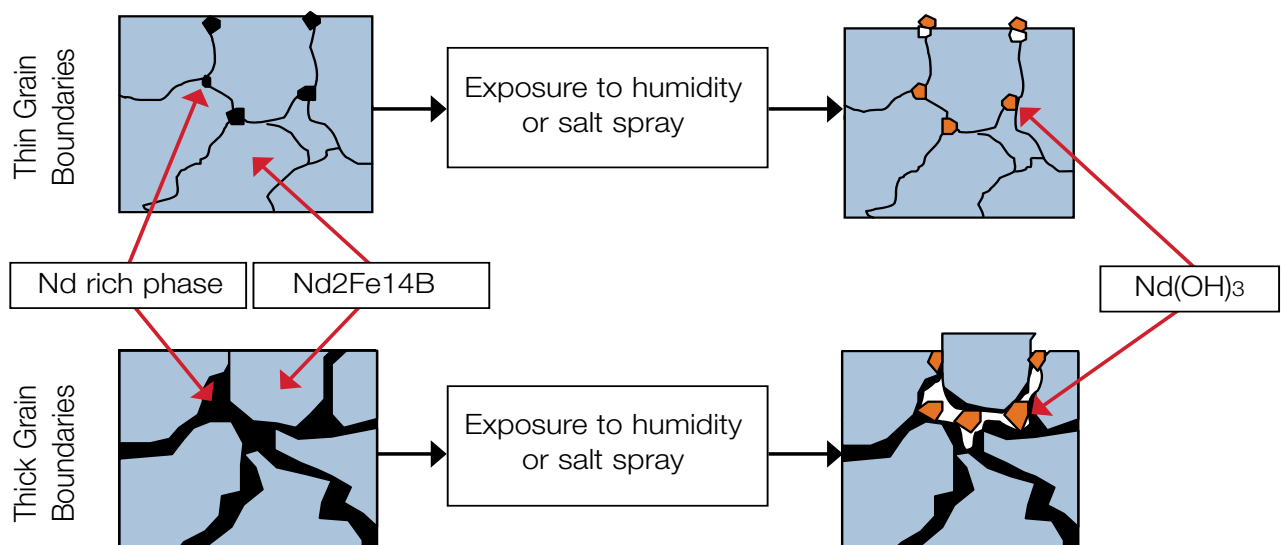
What is an Everlube Coating?

Everlube Coatings are a branch of Curtiss Wright, originally developed as a brand of dry film lubricant products, specifically designed to enhance and improve the performance of critical components and meet a wide variety of industry, defence and customer specifications for critical components. Everlube coatings are widely used by such names as Boeing, Airbus and NASA. The original Everlube coating was a thermoset coating, containing PTFE, molybdenum Di-Sulphide (MoS₂) and phenolic resin adhesive.

Why coat magnets?

As this graphic from Curtiss Wright shows, when exposed to water or humid conditions, the Neodymium rich layers at the grain boundaries react to form Neodymium Hydroxide. The effect of this conversion from Nd to Nd(OH)₃, is a large volume increase along the grain boundaries, leading to cracking and degradation of magnet properties. The speed of this is enhanced when salt is present.

Figure 1: Shows the corrosion mechanism for NdFeB rare earth magnets.



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Introduction to the Everlube 6155 Magnet Coating

Everlube 6155 is an aluminised barrier coating specially formulated to maximize adhesion and corrosion protection when applied to rare earth magnets. The coating is very durable and provides excellent chemical and corrosion resistance.

The application of an Everlube coating to a magnet surface is more complex than a NiCuNi coating or an Epoxy Coating or even a dual NiCu+Epoxy Coating however it has the following distinct advantages;

1. Everlube coated magnets have significantly improved corrosion resistance.
2. Everlube coated magnets have a much better range of chemical compatibility.
3. Excellent quantified performance of 500 Hours Minimum in a salt spray test environment.
4. 4H Hardness

Typical Functional Properties

Characteristic	ASTM Test Method	Value
Corrosion Resistance		>500 hours
Test Panel	ASTM B-117	0.8 mils on grit blasted steel panel
Test Panel Coating Method		
Abrasion Resistance	ASTM D-4060	<40 mg/1000 cycles
Coefficient Friction	ASTM D-2714	n/a
Operating Temperature Range		-300°F to 400°F (-184°C to 204°C)
Load Carrying Capacity	ASTM 2625, Method B	n/a
Wear Life	ASTM 2625, Method A	n/a

Chemical Resistance (ASTM D-2510, Method C)

Hydrocarbon Test Fluids TT-S-735, Method C	Pass	Trichloroethylene, O-T-634	Pass
Aviation Fuel, MIL-G-5572, Grade 115/45	Pass	1,1,1 Trichoroethane	Pass
Methly Ethyl Ketone	Pass	Anhydrous Ethanol	Pass
Toluene	Pass	Methyl Phenyl Silane (DC-550)	Pass