A multitude of these magnets are bonded together to increase the overall level of magnetism. This process leads to two potential issues: firstly, any adhesive or coating between the magnets acts as an air gap and thus reduces the level of magnetism and secondly NdFeB magnets corrode extremely aggressively. This corrosion issue is exacerbated by the environmental conditions that the wind turbines face.

The corrosion mechanism for NdFeB magnets is detailed in Figure 1. This shows that 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.

Curtiss-Wright Surface Technologies (CWST) has been working on a solution to these issues. This involved developing a high grade anti-corrosion coating with minimal coat thickness (effective air gap). The current market leader for corrosion protection is CWST’s own Everlube® 6155 providing 500 hours protection in the ASTM B117 salt spray test.

After extensive studies and trials, CWST is pleased to announce they have successfully developed a coating system which will provide 1,000 hours salt spray resistance for NdFeB magnets at a coating thickness of just 25um. This NEW coating system – Everlube® 1155 is environmentally friendly, easy to apply and a cost effective solution to this critical problem. Please call on +44 (0)1386 421444 for further details.

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

New Anti-Corrosion Coating for Rare Earth Magnets

www.emcoatingsuk.co.uk
Why should you choose Curtiss-Wright Surface Technologies (CWST) to deliver your surface treatments:
A worldwide supported network service of over 75 facilities, including on site field crews

We offer a diverse range of quality surface treatments including:
- Controlled shot peening
- Shot peen forming
- Laser peening
- Engineered coatings
- C.A.S.E.™ super finishing
- Surface texturing
- Material testing
- Repair and overhaul

Proud history of experience and innovation dating back to the Wright Brothers and Glen Curtiss who formed the Curtiss-Wright Corporation in 1929

As a single source for all your surface treatments we can improve your turnaround times and save you money

Customer’s trust us to improve the performance, strength and life of their components, including the repair and overhaul of worn components

Long experience in protecting components from fatigue, corrosion, wear, galling, fretting and environmental attack in key industries

We maintain all appropriate customer and industry quality approvals including ISO 9001:2008, NADCAP, AS9100 Rev C and ISO 13485

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