

HOW TO STOP BEARING FAILURE

In ideal conditions modern bearings will run for years with very little maintenance. Yet in some industries, conditions are so far from ideal that bearings may fail in a few months or even weeks, requiring frequent replacement and causing expensive production delays.

Conveyor bearings, for example, are particularly vulnerable to the dust, debris and slurry from the materials the belts carry. The same is true in many production settings where essential components will fail if they are not given sufficient protection from contaminated environments.

Any engineer will tell you that the key to bearing survival is lubrication; as long as the bearing surfaces are protected from wear, they will continue to run cool and vibration free. If lubrication fails for any reason, wear increases, bearings overheat and, sooner or later, the bearing will fail. In dirty environments, standard maintenance may not be sufficient to prevent contamination and trying to keep bearings clean - by pressure washing, for example - can make ingress worse. So various shields and caps have evolved to protect bearings, with varying degrees of success.

Over the last 15 years Enviropeel has developed a unique bearing protection system that has consistently produced great results. It provides a reliable and cost-effective solution to premature failure in rotating equipment, prolonging



KEY BENEFITS

Increase bearing life by 500%

Prevent contamination & corrosion

Reduce purging & maintenance

bearing lifetimes by 500%, dramatically reducing shutdowns and the need for maintenance. A simple spray application of Enviropeel will immediately prevent contamination ingress and stop corrosion in the bearing housing and bolts as well as reducing the need for purging grease.

Proven Results

Cost savings can be substantial. In the Australian mining industry, where the product has been in use for more than fifteen years, conveyor bearings that had previously required

Images left show a dirty bearing at a roofing plant prior to coating with Enviropeel and same bearing after application. At this plant, contamination was so heavy that some bearings were completely submerged in debris.



replacement every nine months were still in perfect condition more than four years after being protected with Enviropeel. In the US, bearings on a pickling line were only lasting six weeks. Eight months after Enviropeel was first applied, the bearings were still fully operational.

Users regularly experience greater than 500% reduction in bearing changeouts with enormous savings in replacement costs as well as reducing downtime, labor costs and accident rates. Data collected by BHP Billiton and Napier Salt (part of Rio Tinto Group) showed a complete elimination of failures in stored equipment and an increase of over 500% in bearing lifetimes. This led to the adoption of Enviropeel as standard practice for all conveyor bearings, both in storage and on production facilities in Australia.

Costs drop from \$153,000 to \$40,000

Data from a US-based building products company with heavy cement slurry contamination show incredible savings. Prior to

IMMEDIATE SAVINGS

| | |
|-----------------------------|------------------|
| Original maintenance cost | \$153,000 |
| After Enviropeel is applied | \$40,100 |
| Annual saving | \$113,100 |
| Percentage saving | 74% |

using Enviropeel, the bearing maintenance program had eight planned changeouts a year to ensure continuous production. In the first year after the Enviropeel application, engineers were able to immediately halve the changeout rate, saving \$73,000. But, after a year, results were so good they halved the changeout frequency again, saving over \$113,000 in just twelve months - at a cost of only \$1,800 for the Enviropeel protection, an overall cost reduction of 74%.

WHY SOME BEARINGS FAIL - AND HOW YOU CAN PREVENT IT!

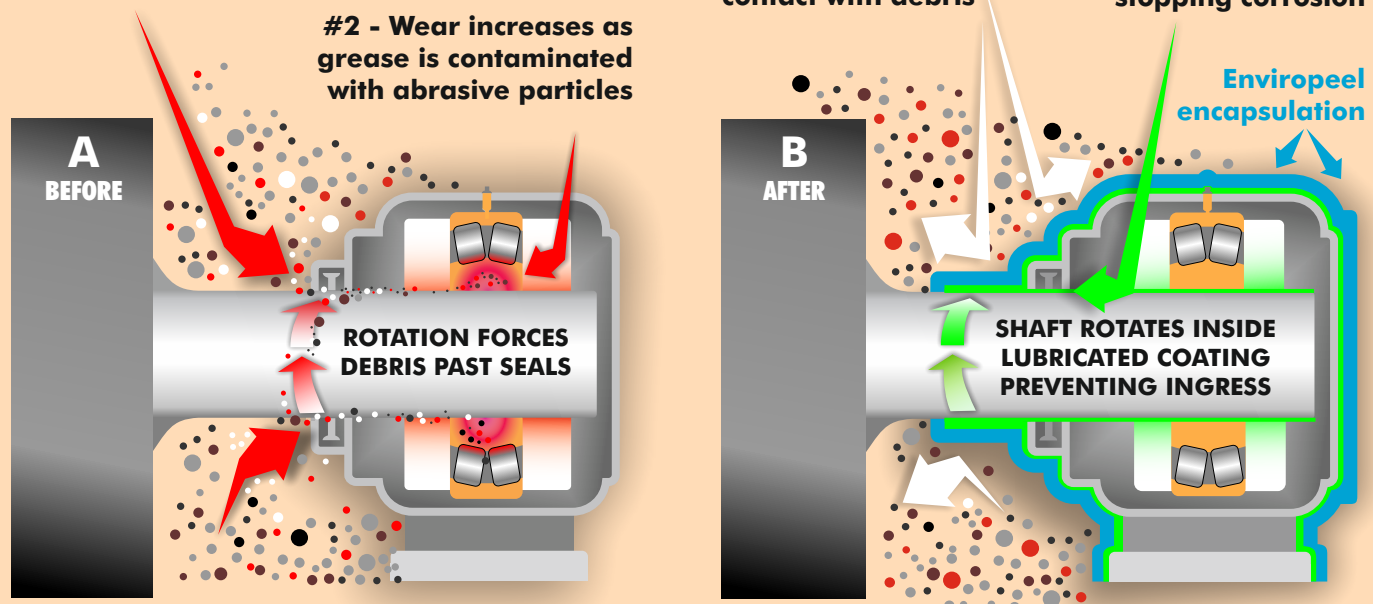
Diagram A, below shows how, in heavily contaminated environments, large quantities of debris build up around bearings (#1). Although bearing seals will prevent initial ingress, shaft rotation will grind and reduce particles which will eventually pass through the seals and into the moving parts of the bearing (#2), a process often made worse by pressure washing. This reduces lubrication and increases wear, causing premature failure. Diagram B shows how Enviropeel works, shielding against dirt and debris (#3) while built-in inhibiting oils cover all contact surfaces, allowing the shaft to rotate within the coating and preventing ingress of contaminants (#4)

#1 - Dust, debris and slurry accumulate around the bearing housing and are rotated through the seal along the shaft and into the bearing

#2 - Wear increases as grease is contaminated with abrasive particles

#3 - Encapsulation of bearing and shaft protects bearing from contact with debris

#4 - Inhibiting oils coat all surfaces lubricating shaft and stopping corrosion





The material fully encapsulates but does not bond to the substrate, so it can also be sprayed directly onto and around the bearing shaft. Inhibiting oil coats and protects all surfaces, lubricating the shaft, allowing it to rotate freely within the coating. The inhibiting oil also prevents corrosion in the bearing casing and fixing bolts, providing unrivalled protection.

Designed and manufactured in the USA

Enviropeel equipment is engineered for reliability and ease of use. The units are mobile and completely self-contained, with their own hose, spray gun and compressor. The heating tank at the top of the unit has a lid for easy entry of the chipped materials at any time. Using straight-forward controls and secure safety systems to monitor and control material temperatures and pressure, the operator is able to adapt flow rates and spray patterns to suit any type of substrate and environmental conditions.

Application Description

The system uses a purpose-built application unit to apply the Enviropeel material, which is supplied chipped for easy handling. Using patented heating technology, the units melt the material into a liquid which can then be sprayed on to any size target substrate. The Enviropeel thermoplastic material is solid at normal temperatures and, once applied, it cools rapidly to form a tough, perfectly-fitting second skin that protects the entire bearing, inside and out. It is manufactured using a UV-resistant thermoplastic polymer that incorporates a slow-release inhibiting oil. It is re-usable and recyclable.



Top: Enviropeel application on-site

*Above & below: Before and after application
Right: The Enviropeel MA-25 mobile unit*



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