BUILDING PRODUCTS INDUSTRY

Inadequate lubrication and contamination are responsible for approximately 80 percent of bearing failures, making them key factors in determining bearing life. The two factors go together, as contaminants absorb the lubricating oil from bearing grease, reducing lubrication and creating a grinding paste within the bearing. Bearings on production lines working with gypsum, fiber cement and fiberglass are particularly vulnerable, with high levels of fine dust and particle accumulation causing widespread failures. This phenomenon is universally understood, and a variety of solutions are commonly adopted:

INCREASED LUBRICATION

This can dramatically extend bearing life, but at many sites lubrication is already maximized through the use of automatic and/or constant lube systems.

BEARING UPGRADE

Sometimes the bearing being used is poorly built with unsuitable seals for the environment. An upgrade may be all that is necessary to improve bearing run times.

ISOLATE BEARING FROM ENVIRONMENT

Keeping the bearing and rotating portions of shaft nearest the seals isolated from the failure causing environment is ideal. In some applications, removing excessive contamination will greatly increase bearing life. Building a shelter can also help reduce debris falling on to the bearing.

A TYPICAL EXAMPLE

At this gypsum and drywall manufacturing facility, the maintenance team had tried a variety of solutions but were still having to change bearings as often as every 8 weeks. The facility has a very challenging environment with the presence of gypsum dust in almost every process. There are also several processes where the gypsum is in a slurry form, creating another vector for contamination. Specific examples included:

EXHAUST FAN BEARINGS

Changeout frequency 2-3 months, depending on production levels. 12 fan bearings on a dust collection system were of particular concern with a cost of approximately $1000 per bearing. Changeouts also required dedicated manpower at each shutdown.

BUCKET ELEVATOR BEARINGS

Changeout frequency 6 months. Failure of these bearings would be catastrophic, damaging equipment

KEY RISK FACTORS

Inadequate lubrication

High levels of dust, debris and slurry

and causing extensive downtime as replacement would require a large crane because of difficult access.

TAIL PULLEY BEARINGS

Changeout frequency 3-4 months. These bearings are fitted to conveyors carrying gypsum into the plant and are subject to particularly high levels of dust contamination with failures still occurring despite regular replacement.

ENVIROPEEL MAKES THE DIFFERENCE

Evidence from similar facilities and the client's own experience with Enviropeel at other sites, show the use of Enviropeel has an immediate impact on bearing life. It uses a unique thermoplastic to encapsulate vulnerable areas, immediately preventing ingress of contamination. Slow-release lubricants within the material allow it to encapsulate rotating shafts, cutting off the prime entry point for dust ingress while at the same time improving lubricant performance and eliminating the need for constant purging.

Looking at standard remedies, as noted in the introduction, Enviropeel addresses all three in one application - improved lubrication from its built-in inhibiting oils, better seal performance through ingress protection and isolation of the bearing from its environment by the encapsulation process. Results from the plant show the remarkable effect of Enviropeel protection on changeout frequencies.

CHANGEOUT FREQUENCY REDUCTIONS

In this gypsum/drywall facility, changeout frequencies were greatly reduced after the introduction of Enviropeel. For the Exhaust Fan Bearings, changeout

Enviropeel is seen above being applied at an asphalt shingle plant. This was a second visit to the plant following an 800% improvement in bearing life in areas where Enviropeel had previously been applied.

Left: After a year at a drywall plant, an Enviropeel protected bearing is buried in gypsum dust. Note the accumulation around the end of the shaft - nothing is getting into the bearing through here!

frequencies have gone from every 2-3 months to over eighteen months with no sign of failure.

At the time of writing, Bucket Elevator Bearings protected with Enviropeel 13 months previously were still running with no further problems and the Tail Pulley Bearings were at eighteen months without failure.

CONCLUSION

The bearing life performance at this site has been dramatically improved, and previous experience indicates that further improvements are likely to be achieved. With this small investment in prevention, the customer has achieved unprecedented performance improvements, with savings on fan bearings alone of $48,000 in the first year. Other savings of note are the decreased lubricant costs, as excessive purging is no longer necessary.

At other sites, operators have seen annual bearing maintenance costs of more than $150,000 reduced to only $40,000 with the use of Enviropeel, producing a 75% reduction in bearing changeouts. Bearings that were failing in weeks lasting many months without failure - and typical overall bearing lifetime increases of 500% with some sites reporting as much as 1000%.

Enviropeel can be a game changer for any facility that uses bearings in difficult environments. For more information, please visit our website or use the contact links below.

Above: Enviropeel-protected bearings at a drywall production facility

Left: particularly heavy levels of debris or regular power washing may require a secondary coating of Rubberloc urethane for extra protection.

KEY BENEFITS

- **Increase bearing life by 500% +**
- **Prevent contamination & corrosion**
- **Reduce maintenance costs by 85%**
- **Huge reduction in downtime**