

MINING INDUSTRY - WA

Robil Engineering of Port Hedland in Australia is a company that works extensively providing engineering services for the mining industry. They first came across Enviropeel in a UK chartered publication. Following a visit to the Enviropeel UK head office, an initial machine was purchased to provide an engineering solution to problems experienced with corrosion on machined surfaces and also stored equipment.



Initial results on a variety of components and equipment were extremely positive and, with the addition of two extra machines, Robil set about revolutionising their approach to component protection. In order to provide added value to their refurbished assemblies, Robil undertook trials with the protection of the bearing and seal systems on various sized conveyor pulleys from BHP Billiton, coating around the complete bearing housing and seal assemblies after rebuild.

The material was sprayed over the housings and seal areas, up to and completely around the shaft. This doubled the effectiveness of the barrier, providing corrosion protection and an additional barrier against contamination ingress, effectively an 'extended labyrinth', on to the shaft.

With proven success on stored equipment, the next logical step was to trial the same system in operation.

Top: Australia can be an extremely severe environment as this equipment shows.

Left: At first the refurbished bearings were coated with Enviropeel ready for storage.



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Enviropeel protected pulleys have shown a huge increase in bearing life. Original bearings in this location were lasting an average of 9 months from new to Severity 1. Severity 1 being the condition monitoring signal level that recommends urgent change out of equipment. In 2007, 4 years after the first application, no pulleys with coated housings had shown any sign of failure. All of the conveyor bearings that Robil have trialed and tested in service so far at both BHPB and Dampier Salt were chosen from particularly severe areas, with high spillage in dirty and salty environments.

Conclusion

Enviropeel has proved itself in many parts of the world and under a wide variety of conditions, but perhaps, it is in Australia where the adaptable nature of the system has shown itself most clearly. It provides users with the ability to extend component life, avoid expensive double handling, significantly reduce maintenance as well as downtime costs and dramatically reduce the exposure of people to risks associated with working with this type of equipment. Enviropeel coating of bearing housings has been adopted as standard practice by BHP Billiton and Rio Tinto in Australia for their conveyor systems.

Above left: Spraying Enviropeel on a pulley housing.

Above: An unprotected pulley housing - and a similar pulley after refurbishment.

Below: With the Enviropeel removed from a pulley housing after use, it is clear how good the performance of the Enviropeel is. The roller in the background shows clear evidence of corrosion whereas the protected pulley is as good as new.



Results from BHP Billiton/Rio Tinto

ON STORED CONVEYOR PULLEYS

Average return rate for replacement on inspection prior to installation on pulleys without Enviropeel 44.5%
 Failure rate with full Enviropeel protection (improved after early testing) 0%

ON OPERATIONAL PULLEYS

Average bearing life in original trial location 9 months
 Current bearing life in original location with Enviropeel applied 48+ months
 Resulting component life increase 500+%
 Resulting saving in pulley change out costs 500+%
 Reduction in maintenance costs 95%
 Percentage of Enviropeel costs to rebuild costs 10-15%
 Percentage of Enviropeel costs to pulley change out costs 5-7%
 Resulting percentage reduction in risk exposure Approaching 500%
 Improvement in safety relating to pulley change out operation Approaching 500%

It is expected that the minimum component lifetime increase should be 500+%