

Case Study — Helping Alcoa Extend Asset Life

Residue sands transfer is a tough, arduous duty and Alcoa was experiencing severe wear with the polyurethane (PU) lined spools from their Warman pumps. The PU spools were only achieving wear lives of between 5 and 8 weeks. At a cost of AU\$700 per spool, Alcoa was looking for answers to extend the life of these spool pieces to reduce maintenance costs and limit non-productive down time.

The Maintenance Coordinator for the Residue Sands Area approached Rojan Advanced Ceramics looking for help in solving this problem.



Original polyurethane spool lasting 5-8 weeks

Following the request for assistance Rojan Advanced Ceramics met with Alcoa to ascertain all the operating parameters that the pipe work was subjected to.

Following this consultation a recommendation was made to use Siliconised Silicon Carbide (SiSiC) in this instance as a pipe lining material. It's superior wear rates to other ceramics (Alumina and Basalt) and it's ability to withstand the reduced pH rates in this part of the process made it the ideal ceramic for this application.

The SiSiC lined spool was installed on 10th February 2003 and inspected after 1200 hours working. There was no noticeable wear visible on the ceramic.

A further inspection was made at 2000 with a small amount of wear visible. The decision was made to return the spool to service and continue until failure occurred.

By February 8th 2005 the spool piece had been in service for 8128 hours.

In February 2006 it had been in service for 3 years, this compared to the 5-8 weeks for the previous spool.

Not only had the SiSiC been more cost effective than the polyurethane lined spools it also significantly reduced maintenance and down time costs.

- **Outlasted polyurethane equivalent by over 20 times**
- **Reduced down time on the plant.**
- **Reduced maintenance costs on site**
- **SiSiC most cost effective over the life of the asset.**

To find out more about how Rojan Advanced Ceramics can help you, please feel free to contact us

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SiSiC Pipe spool being inspected at 2000 hours and going back into service to complete over 8000 hours