SUGAR MILLS
LG MOLASSES
VACUUM TOP PANS

CASE HISTORY

IMATECH
INNOVATIVE INDUSTRIAL SOLUTIONS

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SUMMARY
LG MOLASSES VACUUM TOP PANS

INDUSTRY	:	Sugar Industry
PRODUCT	:	ARC S4+
PLANTS	:	Sugar Mills
LOCATION	:	North Queensland, Australia
DATE	:	January, 2009
SUMMARY	:	Lining of mild steel LG molasses vacuum top pans for long term protection from corrosive attack.
ROI	:	No chemical attack/corrosion or lining deterioration after two seasons.

PROBLEM DESCRIPTION

In 2007, Imatech was requested by two North Qld Sugar Mills to provide a suitable lining for long term protection against corrosion attack occurring in low grade vacuum pans. Volatile organic acids in condensed vapour typically attack the mild steel walls and vapour pipes.

The corrosive nature of this vapour condensate at elevated temperatures works its way through a 12mm boiler plate and attacks weld seams dramatically.

PROBLEM DESCRIPTION

There is evidence of corrosion of the internal surfaces where the vapour condensate streams down the contours of the walls and fittings.

PROBLEM DESCRIPTION

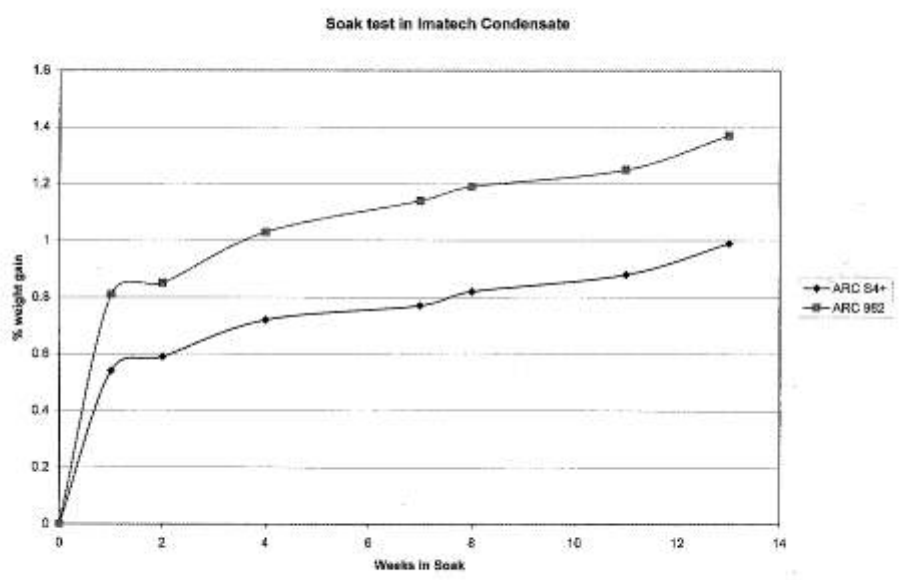
Investigations into previously applied epoxy coatings at the two Sugar Mills concerned showed little success.

With assistance from Mill Engineers Imatech had a sample of the condensate analysed to determine the concentrations of specific organic compounds known to be involved. This allowed us to identify a compatible long term lining solution.

This manufacturers' two part epoxy coating is pictured here after three seasons in service. The degree of corrosion under the coating suggests failure possibly during the first season.

SOLUTION

In addition to chemical analysis of the condensate, Imatech transported a second batch to our Boston, USA Laboratory facilities for controlled soak testing. Two selected linings were exposed to the condensate in an environment designed to tolerate potential coating failure.



The results displayed in this graph show a percentage weight gain as low as 1% after 13 weeks. Although this result suggests that ARC S4+ was suitable for long term continuous immersion service the samples were tested for a much longer period with a resulting gradual decrease in the rate of weight gain.

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SOLUTION

In addition to the laboratory testing this exposed section of an LG Top Pan manway hatch was prepared and coated with two Imatech linings identified as being suitable.

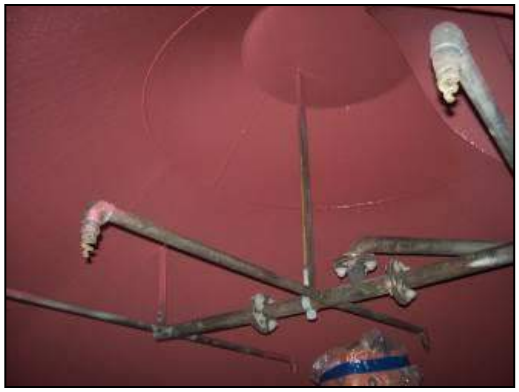
First Season

Second Season

After the first and second seasons the lining is in great condition with no blistering, cracking or deterioration.

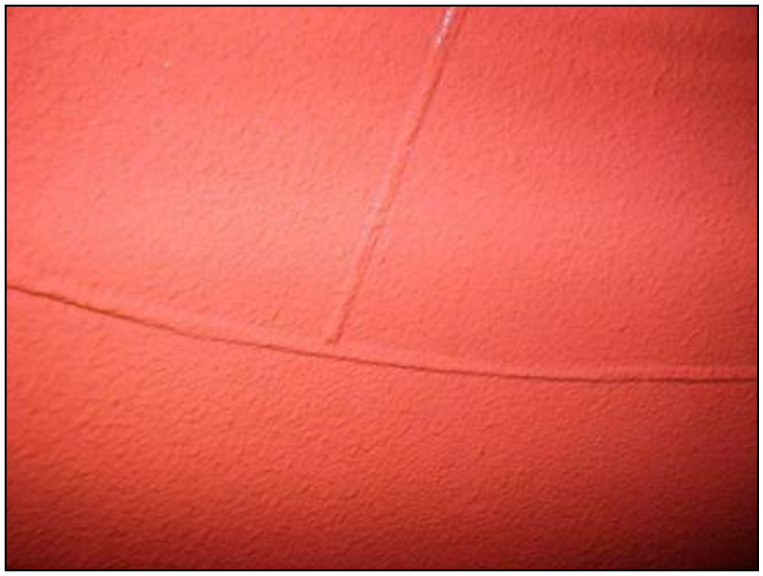
RESULTS

Based on the laboratory and manway hatch results a LG Vacuum Top Pan was prepared and lined by Imatech applicators with ARC S4+ at the beginning of the 2008 season.



RESULTS

A recent inspection in January 2009 of this Pan has shown very good results. The coating is in great condition and the mild steel surface will be protected from corrosion for more seasons to come. A further three Pans at these sugar mills will now be coated with ARC S4+.



CONTACT US

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