

OIL ANALYSIS IDENTIFIES HIDDEN GEARBOX DAMAGE BEFORE CRITICAL FAILURE

Routine lubrication and oil analysis uncovered severe internal gearbox wear on a production-critical cooker mixer, enabling planned maintenance and avoiding more than £35,000 in potential costs.

Improving plant reliability and predictability through best-practice lubrication, routine oil analysis and proactive maintenance recommendations. A cooker mixer at this site plays a critical role in the grain cooking process, ensuring product remains mobile and evenly heated throughout production.

Failure of the mixer could result in product solidifying within the vessel, requiring costly specialist cleaning, production downtime and significant maintenance intervention. Maintaining the reliability of this asset was therefore essential to plant performance.



OUR FINDINGS

As part of an ongoing lubrication programme, AVT Reliability® collected routine oil samples from the gearbox every six weeks for laboratory analysis.

Recent reports identified increasing levels of iron wear particles, indicating abnormal internal wear. Following further investigation and inspection, several gearbox teeth were found to be chipped, heavily worn or broken.

The likely root cause was excessive movement caused by a damaged non-drive-end footstep bearing within the vessel, leading to abnormal loading and gear impact. Importantly, routine vibration analysis showed no significant abnormalities, demonstrating the value of oil analysis as an additional condition monitoring technique.

OUR APPROACH

For more than two years, AVT Reliability® has supported the site with routine lubrication services, including equipment greasing, oil sampling, oil changes and lubrication best-practice guidance.

Due to the critical nature of the cooker mixer, the asset was included within a structured oil analysis programme. Samples were analysed every six weeks to monitor lubricant condition, additive health, contamination levels and wear metals.

Each report was reviewed by AVT specialists, allowing developing issues to be identified and communicated before they became operational failures.

THE SOLUTION

The findings were communicated to site management, allowing corrective action to be planned before the gearbox reached a critical failure condition. Following inspection, the gearbox was removed from service and replaced, with the damaged unit sent for refurbishment and further investigation.

To address the suspected root cause, the non-drive-end footstep bearing was added to the scope of the site's upcoming summer shutdown, where it will be inspected and repaired or replaced as required.

In addition, the replacement gearbox has been retained within the existing six-week oil analysis programme, enabling AVT Reliability® to closely monitor its condition and verify that wear rates return to normal levels.



AT A GLANCE

Industry:

Food & Beverage

Process:

Grain Processing and Distillation

Equipment:

Cooker Mixer Gearbox

Services:

Routine Lubrication Services, Oil Sampling and Oil Changes

Outcome:

Premature bearing defect identified before failure,avoiding potential costs of approximately \$35,000

By combining early fault detection with a planned maintenance response, the customer was able to minimise operational risk, maintain production continuity and take a proactive approach to resolving the underlying issue.

FOLLOW UP

Without routine oil analysis, the developing gearbox damage would likely have remained undetected until a sudden and potentially catastrophic failure occurred. As vibration analysis showed no significant abnormalities, the gearbox could have continued operating while internal wear progressed unchecked.

By identifying the issue at an early stage, AVT Reliability® enabled the customer to plan corrective maintenance rather than react to an unplanned breakdown. The intervention helped avoid production losses, specialist cleaning costs and extensive repair work associated with a failed cooker mixer.

Overall, the proactive approach is estimated to have prevented costs exceeding £35,000 while providing valuable insight into the condition of this critical production asset.

SERVICE MATTERS

“If this unit had not been on regular oil testing, we never would have known until it was too late. Regular oil testing gives us valuable insight into the health of our equipment.”

CONTACT

If your plant is facing similar issues, reach out to AVT Reliability for expert support in condition monitoring, pipework vibration and lubrication management.

We’re here to keep your operations running smoothly.

AVT Reliability Ltd Head Office
Unit 2, Easter Court
Europa Boulevard
Warrington, Cheshire,
WA5 7ZB

W: avtreliability.com
T: +44 (0)161 486 3737
E: enquiries@avtreliability.com