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## Romiley Board Mill reduces oil and bearing costs

Romiley Board Mill is making significant savings in both oil costs and bearing replacements following the introduction of an oil additive and waterproof grease to the lubrication system.

"We have monitored the introduction of both the oil additive and the waterproof grease together with our lubrication consultant John Garside," says John Tomlinson, chief engineer at the Cheshire mill. "And, over the last 12 months we have seen bearing replacements drop by 50%."

"Lofrix has been added to gearboxes on many operations around the site and we have experienced extended runnability and seen heat reductions in all cases. In addition, Lofrix Waterproof grease is now used in all bearings where water has been a problem."

Before the introduction of the additive, the oil was changed at 3 monthly intervals. Now it lasts for 12 months with monthly monitoring.

Romiley is a 35,000 tpy board mill in Stockport. It produces a wide range of product using 100% recycled fibres - chipboard, tube board, laminating board, coloured lined reels and sheeted board for general packaging applications and layer pads.

Until the mid 1980's, the 51 cylinders of the drying section operated with block greased brass bearings. Over a period of time, small sections of the line were converted to 100-second oil - a light oil which reaches pumpable viscosity more quickly than 320-second oil, the conventional lubricant in drying cylinder lubricating lines.

The conversion to 100s oil started on seven cylinders with 14 points and was then extended to a further 28 points which are fed by DP60 pump sets. The latter can pump only light oil through its 1/2" o/d pipes. In 1986 Romiley changed the oil lubrication system to progressive distributors and gear pumps, a configuration

consists of:

- two systems feeding 39 cylinders operating at 25 bar pressure. The pressure in this section was subsequently reduced to 14 bar -with the introduction of an oil additive
  - one system feeding 12 cylinders plus calendars, operating at 44 bar – subsequently reduced to 26 bar.
- The new system proved to be very much more reliable; and, fewer stoppages were required since there was no need for grease block inspection and changing of brasses. But there was a problem in the form of carbon build-up which led to wear of bearing surfaces.

This problem was tackled by the use of an oil additive which was discovered in the early 1990's. Added at 5% strength to the oil, it dislodged carbon build-up in the pipe work and helped to protect bearing surfaces from additional wear. At one point, when some replacement bearings were in short supply, the mill was able to run damaged bearings for several months until replacements were delivered. In addition, Romiley was able to reduce system oil pressures - to 14 bar and 26 bar per section.

But again, there was a problem. The additive affected the copper pipe work, and routine oil analysis showed an elevated copper content.

Enter Lofrix, a new oil additive which has no detrimental effect on copper pipe work. Initially, Romiley added Lofrix to the oil at the same ratio as the earlier additive. But, this caused a dramatic loosening of remnant system debris which clogged up system filters and prevented oil being delivered to the bearings for a period of nine hours.

When the contaminated oil was changed, the mill found that: "despite the oil line blockage, no bearings showed any problem and to this day, all are still in excellent condition. When the oil had been replaced we started at 2% dilution but have been able to reduce this to less than 1% now."

The benefits of using Lofrix include oil costs - previously the oil was changed at 3 monthly intervals, now it lasts 12 months with monthly monitoring. In addition, no cylinder bearings have been changed for 4 years.

Lofrix enables mills to reduce maintenance and electrical energy cost by improving lubricant performance. In lubrication systems it reduces friction losses and extends load bearing capacity. When blended with greases, it extends frictional load bearing capacity and washout resistance and, being completely water repellent, enhances their waterproof properties.

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The drying section at Romiley Board Mill.