World Class Lubrication Reliability Program
Monolec® R & O Compressor / Turbine Oil (6405)

Large PVC Manufacturing Company in East Georgia
Cincinnati Milacron CM65, 80, 92, 135 Extruders

- Increased production by $106,500 per year – 70 hours
- Reduced downtime from oil changes from 75 hours to 8 hours

Customer Profile
Large PVC manufacturing plant, manufactures a broad range of PVC pipe products servicing primarily the plumbing and DIY (do-it-yourself), and underground markets.

Application
Cincinnati Milacron CM 65, 80, 92, 135 Extruders, reduction and distribution gearboxes.

Challenge
In 2005, Mark D. Jones, LE lubrication consultant, introduced LE’s World Class Lubrication Reliability Program (WCLRP) to the plant personnel and maintenance manager. The goal of Reliability Centered Maintenance was to implement LE’s enhanced lubricants, lubrication storage and handling systems, contamination control, LEAP™ (oil analysis), and filtration using Condition Based Maintenance.

Using Chevron gear oils, the extruders were experiencing high heat, metal wear and failures. The current policy was to change out lubricants every three months. However, because of the demand for products, the extruder gearbox oil was changed out every six months during shut down.

The new program is using LE’s WCLRP to achieve Condition Based Maintenance and only change the oil when (LEAP) oil analysis indicates a need for change. Monolec® R & O Compressor / Turbine Oil (6405) was installed in the Reduction gearbox and Duolec® Vari-Purpose Gear Lubricant (1607) was installed in the Distribution gearbox. Production downtime is estimated at $750 per hour and $20 per hour for maintenance technician’s labor hour. During shutdown, it would take three maintenance technicians 2.5 hours to drain and fill each line, a total of 13 lines. It would take a total of two days to drain and fill all of the extruder lines. This would cost the plant 75 hours of production down time and labor down time.

LE Solution
Some lines have four gearbox reservoirs and a heat transfer reservoir per line. Oil analysis (LEAP) samples are taken every three months. Kidney loop filtration is used to filter and sample the oil.

Now that Condition Based Maintenance is used, it only takes one maintenance technician to drain and refill any extruder gearbox. In the last year, there have only been two lines changed out because of oil analysis dictating the need for an oil change.

To help eliminate the high particulate count in the oil, three Des-Case Flow Guard filter carts were purchased. These units clean airborne particulate from the oil, and drain and fill reservoirs without exposing the oil reservoir to additional contamination. DC-4 Desiccant Breathers were used to replace the standard breather cap on each of the extruders to keep particulate from airborne PVC dust and moisture from condensation caused by oil temperature differentials out of the oil reservoir.

Results
The Return on Investment (ROI) for LE’s WCLRP is $106,500 in gained production per year. It now only takes an estimated 8 hours to change lubricants in the extruders. Currently there are over 7 extruders safely running over 15 months on the latest LE oil fill. Line 9 has over 28 months run time and line 3 Reduction gearbox, a CM65, has over 18 months without an oil change.
Other Products Used

- Duolec® Vari-Purpose Gear Lubricant (1605-1607)
- Monolex® Penetrating Oil & Lubricant (2059)
- Monolec® Multiplex Lubricant (4622)
- Syntemp® Synthetic Lubricant (9102)
- Checkfluid

Thank you to the management team, and to Mark D. Jones, LE lubrication consultant (pictured), for providing the information used in this report.

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