Customer Testimonial

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.

UNIT ID:
LINE 3 EXTRUDER REDUCTION
SECOND ID
CM65 HP
UNIT TYPE
GEAR BOX/GEAR SYSTEM
APPLICATION
PLASTICS

ACCOUNT NUMBER	59300009190066
DATE SAMPLED	03/15/08
DATE RECEIVED	03/19/08
DATE COMPLETED	03/20/08
TRACKING #:	07345N03255
MANUFACTURER/MODEL:	CINCINNATI MILACRON CM65
LUBE MFR:	LUBRICATION ENGINEERS
LUBE TYPE - GRADE:	6405 MONOLEC R_O COMP/TURB OIL ISO 150
MICRON RATING:	0
FILTER TYPE:	NONE
SUMP CAPACITY:	13.00
HYD SYSTEM PRESSURE:	0
FLUID ADDED:	

OVERALL SEVERITY OF REPORT
based on comments, not individual flags

0	1	2	3	4
NORMAL		ABNORMAL	CRITICAL	

LAB #	LOCATION	ANALYST
732013	I	RNF

FLUID ANALYSIS REPORT - 877-606-3750

COMMENTS: Data indicates no abnormal findings. Resample at normal interval; Filter change acknowledged;

	WEAR METALS PPM												CONTAMINANT METALS - PPM			MULTI-SOURCE METALS - PPM					ADDITIVE METALS PPM				
SAMPLE #	IRON	CHROMIUM	NICKEL	ALUMINUM	COPPER	LEAD	TIN	CADMIUM	SILVER	TITANNIUM	VANADIUM	SILICON	SODIUM	POTASSIUM	MOLYBDENUM	ANTIMONY	MANGANESE	LITHIUM	BORON	MAGNESIUM	CALCIUM	BARIUM	PHOSPHORUS	ZINC
1	4	0	0	0	1	0	0	0	0	0	0	5	0	1	0	0	0	0	3	0	95	0	201	6
2	3	0	1	0	0	0	0	0	0	0	0	3	0	2	0	0	0	0	2	0	90	0	154	5
3	1	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	1	0	64	0	160	2

You can hover and click on any FIELD NAME (like IRON) to learn more.

SAMPLE #	DATE SAMPLED / DATE RECEIVED	UNIT TIME / LUBE TIME	LUBE CHG	FILTER CHG	FUEL Vol.	SOOT Vol.	WATER Vol	VIS 40°C cSt	VIS 100°C cSt	TAN Total Acid	TBN Total Base	I-R OXIDA	I-R NITRA	ISO CODE	4 MICRON	6 MICRON	10 MICRON	14 MICRON	21 MICRON	36 MICRON	70 MICRON	100 MICRON
1	09/20/07 09/21/07		N	N				133		0.09												
2	12/14/07 12/19/07	15	N	N			<.1	133		0.04				23/20/14	76830	6864	549	134	57	7	1	1
3	03/15/08 03/19/08	18MONT	N	Y				135		0.14				20/19/15	5749	2532	774	197	73	9	1	0

SAMP #	WATER KF PPM
1	147
2	263
3	116

Comments are advisory only and are based on the assumption that the sample and data submitted are valid. Missing labs or unit time limits the evaluation. No warranty is expressed or implied.

Other Products Used

- Duolec® Vari-Purose 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.

300 Bailey Avenue • Fort Worth, TX 76107 • Fax: 800-228-1142
LE operates under an ISO 9001 Certified Quality System.

www.LElubricants.com
800-537-7683