MicroPoly®

LUBRICANTS

AUTOMOTIVE APPLICATIONS FILLED BEARINGS

CASE 1: Assembly line pallets

BEARING TYPE: Tapered roller bearing

CONDITIONS: Pallets traveled through a transmission washer, which washed the oil out of the bearings. Bearing life 3 months.

RESULTS: With installation of MicroPoly, bearing life has been extended to over 2 years. Cost savings are estimated to be $122,500 per year.

CASE 2: Truck assembly transfer conveyor

BEARING TYPE: 2-1/2" Cam Follower

CONDITIONS: Bearing in conveyor could not be lubed. Dirt and contamination were working into bearing causing bearings to fail in 1 or 2 months.

RESULTS: With installation of MicroPoly, bearing life has been extended past 1 year and bearings were still operating.

CASE 3: Towmotor, front wheel spindles

BEARING TYPE: Tapered roller bearings #14116/14274 & 14114/12123A

CONDITIONS: Bearings were heavily loaded and the vehicles were operated until the bearings failed, causing the hubs or wheels to be damaged about 50% of the time. Average bearing life 6 months; range 3 to 12 months.

RESULTS: The bearing life was increased to 3-1/2 years, increasing the utilization of these vehicles. Customer reported a cost savings of $337,314.76 for the fleet of 47 vehicles.

CASE 4: Tire grinder/shaper

BEARING TYPE: Tapered roller bearing

CONDITIONS: Machine grinds tire to final roundness and flattens out sidewall for white wall tires. Vertical shaft has one grease fitting on center of shaft so one bearing gets all the grease and top bearing gets none. Large amounts of tire debris in area. Typical bearing life was between 3-9 months.

RESULTS: MicroPoly filled bearings are lasting 1-2 years.

PhyMet, Inc. • 75 N. Pioneer Blvd. • Springboro, OH 45066
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CASE 5: Grinder chuck bearing

BEARING TYPE: Single row ball bearing #6018 2RS

CONDITIONS: Grease was washed out by constant coolant flow. Bearing life 7 to 10 days. Bearing speed approximately 1,200 RPM.

RESULTS: Life extended to 6-7 weeks without seals on bearings; over 12 months with seals reinstalled on bearings.

CASE 6: Multi-spindle screw machine

BEARING TYPE: Single row ball bearing #87507

CONDITIONS: Manual greasing blew out the seals, causing the grease to be washed out by constant coolant flow and allowing metal chip contamination into the bearings. Bearing life only 2 months. Bearing speed approximately 2,300 RPM maximum; intermittent rotation.

RESULTS: At least a 50% life increase with no seals on bearings, increasing uptime and reducing scrap.

CASE 7: Special machine, index table bearing

BEARING TYPE: Kaydon #KG300XPO – 30” bore

CONDITIONS: The bearing could not be re-lubricated. Coolant washed out the grease. The seals did not adequately protect the bearing from metal chip contamination, which caused premature bearing failure. Changing out bearings required several days of machine downtime and high maintenance labor costs. Bearing life less than 1 year.

RESULTS: MicroPoly filled bearings eliminated early bearing failures. Bearing life increased to over 4 years. Machine uptime was increased and maintenance costs substantially reduced.

CASE 8: Crankshaft grinding line, overhead conveyor wheels

BEARING TYPE: 4” conveyor wheels

CONDITIONS: Continuous lubrication required as conveyor goes through washer. Wheels are sprayed with oil, which drips on to the floor causing severe safety hazard and housekeeping problems. Washer solution becomes contaminated. Bearing life 6 to 9 months.

RESULTS: With MicroPoly, the bearing life was increased to 3 years. Safety hazards and housekeeping problems have been completely eliminated, with no need for any maintenance of the lube system. A quote from the maintenance foreman—“It’s the smartest thing I could have done”.

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CASE 9: Shot blast screw conveyor – stamping plant

BEARING TYPE: Roller bearing

CONDITIONS: Grease attracted shot blast material. Machine required partial disassembly to lubricate bearings. Bearing life was short and unpredictable.

RESULTS: Bearing life has increased more than sixfold, substantially increasing uptime and reducing maintenance costs.

CASE 10: 4-slide wire forming machines

BEARING TYPE: Cam followers filled, and bushings and slides plugged with MicroPoly solid profiles

CONDITIONS: Lubrication was difficult to contain in machine, causing a very severe safety hazard as floor became slippery around the machine.

RESULTS: Eliminated safety hazard and housekeeping problem. Eliminated amount of lubrication used.

CASE 11: Stamping press flywheel and drive shaft bearings

BEARING TYPE: Cylindrical roller & tapered roller bearings – about 4” bore

CONDITIONS: Bearing life was unpredictable due to inconsistent lubrication. Bearings were difficult to reach, and the press had to be shut down for manual lubrication. Bearing speed approximately 300 RPM.

RESULTS: Five years of bearing life achieved. Manual lubrication was eliminated saving labor costs.

CASE 12: Overhead conveyor – assembly plant

BEARING TYPE: 6” trolley wheels and guide rollers

CONDITIONS: Wheels and rollers failed prematurely and were difficult to maintain due to the need for manual lubrication.

RESULTS: No failures were recorded in the 5 years after installation. Customer discontinued monitoring. The manual labor required to maintain the wheels and rollers has been eliminated.

CASE 13: Overhead conveyor – phosphate line

BEARING TYPE: 4” trolley wheels

CONDITIONS: Wheels failed prematurely. The phosphate solution would get contaminated from the grease dripping into the solution. This caused downtime and high maintenance costs.

RESULTS: The wheel life was increased and the maintenance costs were reduced due to the elimination of grease contaminating the phosphate solution.

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CASE 14: Roll bearings

BEARING TYPE: XLC3, single row ball bearing – 3" bore

CONDITIONS: This bearing is no longer available with seals. Bearing speed was slow, with a very heavy load.

RESULTS: All machines have been converted to MicroPoly filled bearings, with longer bearing life than when sealed bearings were used.

CASE 15: Special Machine - pallet bearing

BEARING TYPE: CYR 2-1/2S cam follower

CONDITIONS: Grease was washed out by constant coolant flow. Bearing life only 1 to 4 months.

RESULTS: Eliminated early bearing failures. Bearing life increased and is more consistent.

CASE 16: Forging machine – auto loader

BEARING TYPE: 2-3/4" cam follower

CONDITIONS: Not able to lubricate bearings. Bearing life 2 to 3 months. Speed very slow; heavily loaded.

RESULTS: Eliminated early bearing failures. Bearing life increased and is more consistent.

CASE 17: Conveyor bearings

BEARING TYPE: Mounted bearings (flange and pillow block) - about 1" bore

CONDITIONS: Inconsistent manual lubrication of bearings. Over lubrication frequently caused seals to pop out and grease to drip on floor. Bearing life was inconsistent.

RESULTS: Reduced manual maintenance, eliminated safety hazard and housekeeping problem, and also increased bearing life.

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AUTOMOTIVE APPLICATIONS SOLID PROFILES

CASE 18: Automation for car body carrier

MICROPOLY: MicroPoly Sprocket for #60 chain

CONDITIONS: Automation was designed without chain lubrication, causing problems with chain wear and unacceptable chain life.

RESULTS: MicroPoly sprockets operated successfully for 7 years with no noticeable wear on either the chain or the sprockets.

CASE 19: Sheet metal processing automation

MICROPOLY: MicroPoly Sprocket for double #40 chain

CONDITIONS: Conveyor chain was periodically manually lubricated with an oil sprayer. This caused the oil to drip, thus creating the need to contain the excess oil in pans. Because of the severe safety hazard, the steel pans had to be cleaned out before the equipment and the chain could be serviced.

RESULTS: MicroPoly Sprockets have eliminated the safety hazard and increased the chain life.

CASE 20: 6” forging machine

MICROPOLY: Slides utilizing MicroPoly plugs

CONDITIONS: Lubrication holes and grooves would clog, causing inadequate lubrication of the slide surfaces. This lead to premature and heavy wear resulting in quality problems and excessive downtime. The machines needed to be rebuilt every 9 months.

RESULTS: The incorporation of the MicroPoly plugs provided sufficient lubrication to reduce the wear condition, increasing the interval for machine rebuild to 28 months.

CASE 21: Tool room grinder

MICROPOLY: Table slides utilizing MicroPoly plugs

CONDITIONS: The lubricity of the polymer slide material was lost due to the coolant exposure. This caused the coefficient of friction to increase and excessive force was required to move the table slide.

RESULTS: The incorporation of the MicroPoly plugs permitted sufficient lubrication to reduce the coefficient of friction to a low level. The slide can now be moved easily by hand.

CASE 22: Stamping presses

MICROPOLY: Bronze bushings and gear faces utilizing MicroPoly plugs

CONDITIONS: Lubrication was pumped vertically to each of the wear components. Lubrication lines would clog and the high load zones were not sufficiently lubricated, causing the overhaul of each press every 7 years of usage.

RESULTS: Eliminated the need for lubrication and the associated manual labor. After 7 years the bushings and gear faces showed no wear and did not need to be replaced.

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AUTOMOTIVE APPLICATIONS SOLID PROFILES

CASE 23: Parts conveyor chain drive

MICROPOLY: 1" x 2" x 20' conveyor chain lubrication block, #60 chain

CONDITIONS: UHMW guide material supporting the chain wore out prematurely. This resulted in inconsistent parts feeding problems. The chain would disengage from sprockets when worn down, leading to frequent guide replacement.

RESULTS: Eliminated inconsistent parts feeding problems and frequent guide replacement. After 3 years of use the blocks are still in service.

CASE 24: Car assembly line - carrier

MICROPOLY: 1" x 2" x 4" lubrication block in spring loaded mechanism

CONDITIONS: Grease lubrication was extremely messy. The lubrication also created housekeeping and safety problems. This could potentially contaminate parts of the car during assembly and affect paint quality.

RESULTS: Eliminated contamination, housekeeping, and safety problems.

CASE 25: Car assembly line – chain drive

MICROPOLY: 1" x 2" x 5' conveyor chain lubrication block

CONDITIONS: Could not lubricate conveyor chain with liquid lubricant, because lubricant contaminated sheet metal prior to painting and affected the paint quality.

RESULTS: Extended chain life and solved lubrication problem, therefore eliminating contamination of the sheet metal.

CASE 26: 4-slide wire forming machines

MICROPOLY: Cam followers filled, and bushings and slides plugged with MicroPoly solid profiles

CONDITIONS: Lubrication was not containable in machine, causing a very severe safety hazard as floor became slippery around the machine.

RESULTS: Eliminated safety hazard and housekeeping problem. Eliminated lubricating oil usage.

CASE 27: Sheetmetal stamping - automation

MICROPOLY: MicroPoly gear lubrication – rack & pinion

CONDITIONS: Sheetmetal was moved from one position to another using a rack & pinion type loading system. Liquid lubrication could not be used because the sheetmetal was subsequently painted, and contamination from lubricants was not permitted. Rack & pinion life was about 2 months, causing an expensive repair and substantial downtime.

RESULTS: A MicroPoly gear was manufactured from a 3.3" diameter bar. The gear was mounted to the pinion gear on a standard sprocket mounting device. The life of the rack & pinion was extended to at least 2 years.

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CASE 28: Car Seat Conveyor System

MICROPOLY: Machined block was incorporated into conveyor guide system

CONDITIONS: A conveyor chain with a friction strip could not be lubricated, because if oil got on the friction strip, there would not be enough friction to drive a series of rolls moving automotive car seats. The chain was guided in UHMW guide material, held in standard steel guide holders, the full length of the conveyor. An amperage draw check was made before installation, with a reading of 4.5 amperes.

Results: Two-foot sections of the MicroPoly blocks were incorporated at intervals for a length of about 10% of the conveyor length. After the installation of the MicroPoly blocks, another amperage draw check was made with the reading of 2 plus amperes, indicating a reduction of friction due to the weeping of oil to the chain and to the UMHW guide material. This resulted in an increase in chain life, reduction in wear of the UMHW guide material, and reduced electric power consumption.

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