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Why use WayPure®?

There are three directions to take in looking at why you should use a zinc, phosphorous and sulfur free; way oil such as WayPure®

Lubricating Properties

Typical way oils use refined mineral oils, with extreme pressure additive packages containing dialkyldithiophosphate more commonly referred to as ZDTP.

This additive package has worked well for many years however with machine tools being manufactured to tighter tolerances and being used for higher production, this chemical formulation can lead to several performance problems.

- Typical way oil additive can be hydrophilic where they attract moisture, this creates the gumming up of ways, reducing the lubricating qualities and necessary performance
- Typical refined base oils contain heavy metals (see chart #1) affecting lubrication. WayPure® products are blended using highly refined virgin base oil minimizing any contaminants and improving friction reduction.
- Independent laboratory Falex testing indicates that WayPure® products meets or exceeds premium way oil lubricity standards. The test measures bearing load and resulting wear produced by extreme pressure forces under constant speed and temperature, (see chart #2).

METAL (ppm)	WayPure® 68	Typical Standard Way Lube
Iron	1	11
Aluminum	0	0
Silicon	1	1
Sodium	0	0
Magnesium	1	1
Calcium	0	45
Phosphor	1	409

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Zinc	1	318

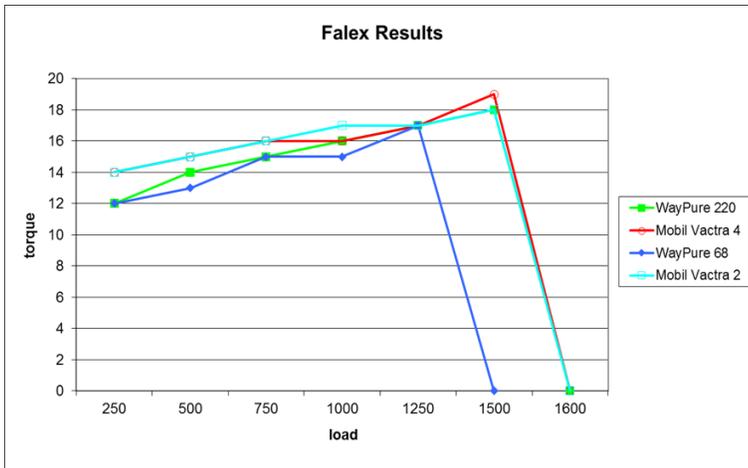


Chart #2 Falex Results

Oil for

The Falex Lubricant Tester is a steel journal and bearing loaded by a spring gauge micrometer and driven by a 1/3 H.P. 290 RPM motor. A Faville-LeVally Lubricant Tester equipped with automatic loading device, 0-4,500 lb. load gage, and torque indicating gage. Brass shear pins, steel journals, and steel V-bearing blocks.

PROCEDURE: An unused set of test pieces and a fresh charge of test oil is used for each test. The test pieces are thoroughly degreased with mineral spirits followed by a benzene rinse and then dried. 60 ml of the test oil are placed in the clean lubricant container. The automatic loading device with its gage is placed on the jaw arms. The machine's motor is started and the load manually adjusted to zero. At this loading, the torque gage should read zero or be adjusted so that it does. The automatic loading ratchet is then engaged and the load increased to 500 lbs. At this point the loading ratchet is disengaged, a torque reading taken, and the machine is allowed to run at this loading for five minutes (break-in period). At the end of this period, another torque reading is taken and the loading ratchet is again engaged. The load is allowed to increase at the rate governed by the automatic ratchet until failure occurs. Torque readings are taken at each 250-lb. interval. No test is continued past 4,000 lbs.

Failure is indicated in one of two ways:

1. A sudden shearing of the brass locking pin.
2. Wear occurring at a rate such that the load ratchet cannot keep up and

The load decreases consequently.

The maximum load attained in either case is reported as failure

load. Failures which occur during the break-in period are reported as failures at 500 lb. load. The type of failure is noted in the record along with failure load and torque at failure load.

The second direction to look at is lowering maintenance.

- Getting back to the ZDTP additive. Constant use of products containing this additive results in a zinc plating of the lubricating lines. Eventually this causes plugging of check valves.
- WayPure® products are non-corrosive to all alloys adding a layer of protection to machine parts.

The third direction to investigate is extending coolant life

What happens when a standard way oil containing ZDTP leaks into a coolant sump?

- ❖ Water soluble phosphates are produced
- ❖ As the phosphate products migrate to the water phase, the zinc is attracted
- ❖ The phosphate and zinc begin to pull primary and secondary emulsifiers from the metalworking fluid
- ❖ The mixture of zinc, phosphate and emulsifiers creates a gum like mass that adheres to machines, tools

This results in;

- ❖ The integrity of the metalworking coolant being compromised
- ❖ The coolant begins to split
- ❖ The pH starts to drop dramatically
- ❖ The coolant becomes prone to biological attack
- ❖ The residue, primarily comprised of sodium, phosphorous and zinc adheres to tooling causing premature tool wear
- ❖ Coolant loses performance and should be replaced

Summary

Numerous case studies have shown changing to WayPure® will generate cost savings in several ways as well as improve the shop environment;

- Longer coolant life (as much as 30%)
- Lower machine maintenance costs
- Reduced waste costs
- Lower chance of dermatitis due to bacteria and low pH
- Eliminates Monday morning odor

- Considered a “GREEN” product due to low heavy metals

NOTE:

WayPureâ 68 meets the requirements of Cincinnati Milacron specifications P-47.

WayPureâ 68 is listed and approved for purchase under Military Specification C4831

250 South Industrial Drive • Saline, Michigan 48176 • (734)
944-4994 • (800) 883-7876 • fax: (734) 944-4995 •
www.condatcorp.com