POLARIS™ Laboratories

Prolong Engine Life, Field Test Coolants at Oil Drain

TECHNICAL BULLETIN

With over 50% of all engine problems initiated by problems with the cooling system, field testing is an integral part of keeping a fleet up and running and should be done at every oil change or at least every 250 - 500 hours. The equivalent of basic Level 1 laboratory testing, field testing can determine with about 90% certainty whether or not the coolant is performing properly and in some cases, also identify the cause of the problem. The tests are simple, cost effective and are an excellent screening device for detecting problems that may require more advanced laboratory testing and analysis.

Cooling systems are a delicate balance between glycol, water, and different additive packages that can be affected by even the slightest change in operating conditions. Changes in temperature, pressure and flow and a wide range of possible contaminants can change a coolant's entire chemical makeup, leaving engine metals vulnerable to pitting, scale deposits and corrosion.

Engine designs over the past few decades have taxed cooling system operating temperatures even further, making it very difficult to maintain a balanced coolant formulation. But regular testing monitors system changes and helps tremendously in detecting and preventing cooling system problems and failures.

Field testing monitors coolant maintenance levels to ensure proper engine metal protection, glycol levels for freeze and boil point control, nitrite for prime metal pitting protection and acidity for adequate corrosion protection. But important to note is that coolant formulation - specifically the coolant’s inhibitor package - will determine which test strips to use. There are strips available for Organic Acid Technology (OAT) coolants, hybrids and conventional formulations.

If the coolant's inhibitor package is nitrite ONLY, use a test strip containing nitrite, pH and glycol. If the formulation contains nitrite and molybdate, be sure to use a test strip containing both nitrite AND molybdate. Use field testing to monitor glycol and pH levels in all coolant formulations.

To order test strips, contact POLARIS Laboratories Customer Service at 877-808-3750

.

Field Tests include:

- Visuals (color, oil and/or fuel contamination, magnetic/non-magnetic precipitation & odor)
- pH
- Nitrite
- Molybdate
- Glycol

More advanced Level 2 or Level 3 laboratory testing should be done every 1000 hours - at a bare minimum, just before summer and just before winter. Level 2 testing monitors the corrosive attributes of the coolant itself - acidic or alkaline - in addition to metal movement - the corrosiveness of each metal affected. Level 3 testing identifies possible sources of problems detected in field testing and Level 2 laboratory testing, such as combustion gas leaks, air contamination, electrical ground problems, localized over-heating, chemical breakdown or other contamination sources inside or outside the system.

Advanced Test Package Details

Appropriate training for the development of adequate field testing skills involves both classroom instruction and hands-on evaluation of real world samples using simple instrumentation.