Coolant Analysis - Basic

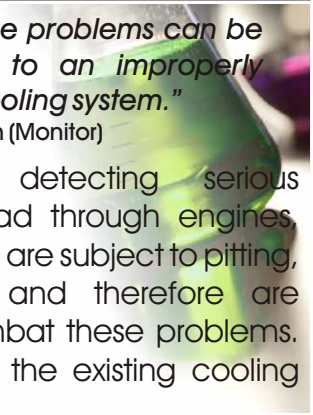
Fluid Life

Coolant Analysis

Basic Testing Package

"Fifty percent of all engine downtime is associated with cooling system problems."
Caterpillar Inc.

"40% of engine problems can be traced back to an improperly functioning cooling system."
Cummins Filtration (Monitor)



Coolant analysis provides a powerful means of detecting serious problems caused by overheating that can spread through engines, transmissions and hydraulic systems. Cooling systems are subject to pitting, corrosion, cavitation, erosion and electrolysis, and therefore are formulated to provide protective measures to combat these problems. Fluid Life's Basic Testing program will determine if the existing cooling formulation is providing adequate protection.

Basic Coolant Analysis Tests

Preliminary Observations
Identifies macro sources of coolant contamination and degradation.

- *Colour and appearance:* in a visual check; clear and bright is what you want to maintain.
- *Precipitate:* inspection for particulate matter floating in the coolant.
- *Odour:* lab technician checks for obvious foreign odours such as oil, fuel, and ammonia.

PH (ASTM D1287)
The measure of acidity or alkalinity of water. Low coolant pH will result in significant corrosion when heated, while high pH may lead to aluminum and copper corrosion.

Glycol Percentage (ASTM R1-D3321)
Indicates the percent glycol in the coolant. In most applications a concentration of 50/50 (glycol/water) is acceptable. When prolonged ambient temperatures are below -35 C a 60/40 mixture is recommended. If the glycol concentration is higher than 70%, the freeze point is not improved and heat transfer capacity is reduced and additives may not be totally soluble.

Ion Chromatography (ASTM D5827)
Determines the level of chlorides and other anions in parts per million(PPM). Sources are degradation by-products or additives. Some potential detectables are:

- Chlorides
- Nitrates
- Glycolates
- Nitrites
- Phosphates
- Sulphates
- Molybdates
- Oxalates

Due to interferences with some coolant formulations and chemistry, some of the above anions may not be reportable.

Conductivity (µS/cm)
This is the measure of the coolant's ability to resist carrying an electrical current between two dissimilar metals. Excessive levels can be due to improper water, high metal corrosion, or over treatment with supplemental coolant additives (SCA)s. If conductivity is too high, harmful pitting and corrosion can occur.

Boiling Point (ASTM R1-D3321)
The temperature at which a coolant will boil at sea level. Determination of the maximum operating temperatures of the coolant. System temperatures should never be at or near the boiling point.

Freeze Point (ASTM R1-D3321)
The temperature at which a coolant will freeze at sea level. Cooling system and engine component failures may occur if coolant temperatures near or reach the freeze point.

...because what happens on the inside really counts

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