COOLANT ANALYSIS PROGRAM GUIDE
Coolant Analysis Benefits

Coolant analysis provides a snapshot of what is happening inside your equipment. It can tell you the condition of the fluid and identify component wear, corrosion or contamination in engines so that you can:

- Maximize asset reliability
- Extend equipment life
- Minimize downtime by identifying minor problems before they become major failures
- Increase resale value

Sampling Best Practices

Although an equipment manufacturer’s recommendations provide a good starting point for developing preventative maintenance practices, sampling intervals can easily vary. How critical a piece of equipment is to on-time delivery or production is a major consideration for determining sampling frequency, as are environmental operating conditions.

Taking samples at regular intervals under typical operating conditions can detect and prevent imbalances between the water, glycol and various additives that coolants contain. When taking samples, make sure the sample bottle is clean and free of contaminants. Always fill out all sample label information completely and accurately. Engine make and model, application and miles and/or hours are crucial to receiving the most accurate data analysis and the most useful maintenance recommendations possible.

Prestone Coolant Kits

<table>
<thead>
<tr>
<th>TEST DESCRIPTION</th>
<th>METHOD</th>
<th>AFC100-TK2 / 74401</th>
<th>AFC110-TK3 / 74419</th>
<th>AFC110-TK5 / 74427</th>
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<tbody>
<tr>
<td>Sample Inspection for color, odor, oil, fuel, foam, magnetic precipitate, and non-magnetic precipitate</td>
<td>In-House Method</td>
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<td>Antifreeze % Calculation</td>
<td>Calculation</td>
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<td>Boil Point</td>
<td>mod. ASTM D3321</td>
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<td>Nitrites</td>
<td>In-House Method (Test Strip)</td>
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<td>pH</td>
<td>ASTM D1287</td>
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<td>Specific Conductance</td>
<td>Meter Measurement</td>
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<td>Total Dissolved Solids</td>
<td>Meter Measurement</td>
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<td>Inhibitor Metals</td>
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<td>Organic Acid Inhibitors</td>
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<td>Degradation Products</td>
<td>ASTM D5827</td>
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</table>

*Note: The Sample Information Form MUST be completed for every sample unless the sample is logged online. Updates to components can also be made in HORIZON® at www.prestone.com/command/products/testkits.html.*

Sample Information & Component Registration Forms

A. Use the part number to determine what testing your coolant test kit will receive. (See coolant test chart on page 2.)

B. Attach a barcode to the sample jar and retain the other barcode for your records. If the sample has been logged online, the barcode will contain all required sample information needed for processing.

C. The Sample Information Form MUST be completed for every sample unless the sample is logged online.

D. Complete the Component Registration section ONLY when sampling a component for the first time or to make changes to a pre-registered component. Note: Updates to components can also be made in HORIZON® at www.prestone.com/command/products/testkits.html.

E. Attach the return address label for the laboratory location nearest you to the black mailer.

   - Place sample jar and sample information form, if applicable, in black mailer.
   - Ship by trackable delivery service such as UPS or FedEx.
   - If your kit comes with a pre-paid postage label please use in lieu of the above.

Sending Sample Information Online

Use HORIZON’S Sample Submission feature to improve accuracy and ensure faster processing. When a sample is logged online, the barcode will contain all the required information needed for processing. There’s even a Sample Submission management report that helps you keep track of all samples submitted. It also allows for updates to sample and/or component information if you discover changes are needed while the sample is in transit. Visit www.prestone.com/command/products/testkits.html.
Test Results

To access test results online, go to www.prestone.com/command/products/testkits.html and log into your account. HORIZON® is much more than a simple way to view test results. This interactive tool provides you with many unique features that make managing your fluid analysis program a snap. Sample reports are designed to be interactive in HORIZON® and allow you to:

- Update missing component information right from the report.
- Determine sources of contamination, corrosion or wear by hovering over a specific elemental metal.
- Review test method explanations to view the exact ASTM method run for a particular test.

Sample and Component Information

The information submitted with a sample is as important to who is reading the report as it is to the analyst interpreting the test results and making recommendations. Properly document your equipment and share this knowledge with your laboratory. Review the documented component information to:

- Compare shipping and processing dates to evaluate turnaround time.
- Determine the analyst making recommendations.
- Update missing information and request immediate re-evaluation.
- Track sample specific information using the Miscellaneous field such as “who took the sample” or “work order number.”

Comments

A data analyst’s job is to explain and, if necessary, recommend actions for rectifying significant changes in the fluid or the unit’s condition. Reviewing comments before looking at the actual test results will provide a roadmap to the report’s most important information. Any actions that need to be taken are listed first in order of severity. Justifications for recommending those actions immediately follow.

Elemental Metals

Elemental Analysis, or Spectroscopy, identifies the type and amount of wear particles, contamination and corrosion. Determining metal content can alert you to the type and severity of wear occurring in the unit. Measurements are expressed in parts per million (ppm).

Test Data

Test results are listed according to age of the sample – oldest to most recent, top to bottom – so that trends are apparent. Significant changes are flagged and documented in the comments section of the report so you can address most critical issues first.

Graphs

There are customizable graphs available on every report that help you pinpoint developing trends. To ensure graphs are turned on for your account, log into HORIZON® and go to My Settings > Sample Report Display.

Online Training

HORIZON® online training is available every month. Each session will provide a tour of new features and an overview of application best practices. For dates and times, log into your Command Analysis Center account at www.prestone.com/command/products/testkits.html.
How to Take Representative Coolant Samples

Although an equipment manufacturer’s recommendations provide a good starting point for developing preventative maintenance practices, sampling intervals can easily vary. How critical a piece of equipment is to on-time delivery or production is a major consideration for determining sampling frequency, as are environmental operating conditions.

Taking samples at regular intervals under typical operating conditions can detect and prevent imbalances between the water, glycol and various additives that coolants contain. When taking samples, make sure the sample bottle is clean and free of contaminants. If sampling source water, run the water for one minute before filling the sample bottle to the top so that air is not introduced while filling or during shipment. Always fill out all sample label information completely and accurately.

Equipment type and the miles and/or hours on both the equipment and the coolant are crucial to receiving the most accurate data analysis and the most useful maintenance recommendations possible.

**Sampling with a Vacuum Pump**

Sampling by vacuum pump draws coolant from the radiator. With the engine off, insert a clean piece of plastic tubing into the radiator tank cutting it to a length that extends about six inches into the coolant and about one inch beyond the base of the radiator filler neck. Attach a sample bottle to the pump and tighten firmly. Never take a sample from the bottom of the radiator tank.

**Sampling with a Needle Probe Valve**

Wipe the valve with a clean, dry lint-free cloth. Slowly push the needle valve probe onto the sampling valve. **BE CAREFUL!** Pressurized fluid can be released with great force when valves are opened. To collect a representative sample, discard the first sample to purge the valve stagnant coolant and debris. Be sure to recap the valve with its protective cap or plug.

**Sampling with a Petcock Valve**

Remove the protective cap if present and wipe the valve off with a clean, lint-free cloth. Turn the handle or depress the push button slowly to avoid a sudden burst of coolant. Draw then discard the first 4-5 ounces of coolant to purge the valve of stagnant coolant and debris. Fill the sample bottle to within one inch from the top. Seal the bottle tightly before wiping it clean.

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Lab Locations

- **Indianapolis, IN**
  7451 Winton Drive
  Indianapolis, IN 46268-2177

- **Houston, TX**
  10910 W. Sam Houston Parkway N., Suite 700
  Houston, TX 77064-6314

- **Salt Lake City, UT**
  3060 W. California Ave., Suite B
  Salt Lake City, UT 84106

- **Atlanta, GA**
  Northmount Business Center
  1950 Evergreen Blvd., Suite 400
  Duluth, GA 30096

- **Canada**
  5140 75th Street
  Edmonton, AB T6E 6W2