

How to Take A Representative Coolant Sample



Equipment manufacturers' recommendations provide a good starting point for developing preventive maintenance practices but 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 chemical make-up of the coolant, contaminants present and chemical reactions taking place internally in the system. Accurate representative samples of the coolant that is circulating throughout the system need to be obtained for accurate results and recommendations.

Analysts offers coolant analysis sample kits to make sampling convenient and simple. These kits include:

- 4 oz. sample container
- Plastic secondary containment bag
- Sample processing form
- Pre-addressed mailer for sample return to laboratory

For the most accurate test results and recommendations, follow these guidelines when submitting samples for analysis:

- Be sure each sample bottle is clean and free of contaminants prior to sampling
- Fill out the sample label completely and accurately with all equipment and fluid information or submit samples online in LOAMS
- Include the miles/hours on the equipment and the coolant

SAMPLING WITH A VACUUM PUMP

Sampling by vacuum pump draws coolant from the radiator. Do not obtain a sample from the overflow tank. There isn't good coolant wash and, due to water evaporation, the contaminants present can be much higher than what is actually moving through the system.

Step 1 - If the unit has been running, turn off the engine and let it sit for 15 – 30 minutes to depressurize. If the equipment has not been running, it is best to run the system long enough for the thermostat to open and the coolant to thoroughly mix within the system. Then turn off the engine and let the unit sit for 15 – 30 minutes to depressurize.

Step 2 - Place approximately six (6) inches of tubing into the coolant and mark a line on the tubing to represent the top line of the filler neck. Measure six (6) inches above the filler neck then cut the piece of tubing to that length.

Step 3 - Insert the tube through the vacuum pump head and tighten the lock ring. Make sure the tube extends approximately one (1) inch past the base of the vacuum pump head.

Step 4 - Attach a sample bottle to the pump and tighten firmly.

Step 5 - Place tube into the radiator through the filler neck up to the mark on the tube.

Step 6 – Pump the vacuum pump plunger a few times to start suction. Continue pumping until sample bottle is approximately $\frac{3}{4}$ full. Hold the pump upright and do not overfill the bottle to avoid back flow and contamination of the vacuum pump.

Step 7 – Break the suction by unscrewing the sample bottle from the vacuum pump. Place the lid on the sample bottle and seal tightly.

Step 8 – Fill out the sample container label completely and affix it to the sample container. Place the sample in the plastic secondary containment bag, place it in the pre-addressed return mailer and send the sample to the lab immediately using a courier or mail service that has package tracking.

SAMPLING FROM THE DRAIN

This is not the best method for obtaining a coolant sample. However, if this is the only means for sampling a unit, the following steps will ensure the best, most representative sample possible.

Step 1 – Place a catch basin that is clean and free from debris and contaminants on the ground under the location of the bottom radiator plug.

Step 2 – Remove the cap from the sample bottle.

Step 3 – Open the bottom radiator plug enough to allow coolant to flow freely into the catch basin. Drain approximately a ½ gallon of coolant before moving the sample bottle under the coolant stream. Fill the sample bottle and re-tighten the radiator plug.

Step 4 – Tighten the sample bottle cap.

Step 5 – Pour the coolant drained into the catch basin back into the cooling system.

Step 6 – Fill out the sample bottle label completely and accurately. Place the sample in the plastic secondary containment bag, place it in the pre-addressed return mailer and send the sample to the lab immediately using a courier or mail service that has package tracking