

Samples need to include fluid that best represents the oil circulating through the system during normal operations. Oil analysis kits are available to make sampling convenient and simple. These kits include cap, tubing, sample bottles and paperwork with preaddressed shipping labels.

Use the following tips to capture the best sample possible.

- Make sure the sample bottle is clean and free of contaminants.
- Fill out all equipment and fluid information completely and accurately on paper or electronically.
- Include the time/distance on both the equipment and the oil.

Use the steps below to pull the best oil sample from your equipment.



Sampling with a Vacuum Pump

The vacuum pump is used to extract samples from a dipstick or non-pressurized system.

Step 1 – Have the equipment being sampled at or close to normal operating temperature. Place clean, dry, lint-free cloth on a nearby surface and lay out sampling tools. Remove dipstick and place on the cloth. Lay the tubing along the length of dipstick and make a mark where the tube meets the top of the stick. Measure 6 inches (15 cm) above the mark and cut the tube.

- If using a sample port without a dipstick, measure the outside of the reservoir tank, measure from the top of the port to halfway down the tank, place a mark at that length from the end of the tube, and cut the tube 6 inches above the mark.

Step 2 – Insert the tube through the head of the vacuum pump and tighten lock ring. The tube should extend about 1 inch (3 cm) beyond the base of the vacuum pump head. Screw in the sample bottle to the bottom of the vacuum pump and tighten securely.

Step 3 – Place tube into the reservoir. To avoid drawing settled debris into the sample, only insert the tubing until the mark from Step 1 is flush with the top. Do not allow the tubing to contact the bottom of the sump.

Step 4 – Push and pull the vacuum pump plunger a few times to start the suction. Continue pumping until sample bottle is $\frac{3}{4}$ full. Hold the pump upright and do not overfill the bottle to avoid contaminating the vacuum pump.

Step 5 – Unscrew the sample bottle from the vacuum pump to break the suction and continue to hold the pump upright. Seal the bottle with the lid and tighten securely before wiping the outside of the sample bottle with the cloth.

Step 6 – Drain remaining fluid out of tube into tank and remove tube from the oil. Wipe off the tube where it extended into the sample bottle. Remove the tube from the pump and properly dispose of it. Reusing tubing will contaminate future samples.

Step 7 – Place one barcode label on sample bottle and the appropriate shipping label on the return package. Send the sample to the lab immediately using a trackable mail service.

Sampling with a KST Series Probing Valve

The KST Series Probe Sampling Valve is a needle valve that is installed on a pressurized system. The valve should be installed on a pressurized line with a minimum of 4 psi to a maximum of 1000 psi. It requires the use of the KST Series Cap to insert into the valve to retrieve sample. It consists of a bottle cap, 4" tube with a needle and a vent opening to allow flow.

Step 1 – Have the equipment being sampled at or close to normal operating temperature. Wipe the valve with a clean, dry, lint-free cloth. Hold a separate waste container under the KST Series cap and insert the needle probe into the valve. Flush at least 3 times the fluid in the valve into the container to purge stagnant oil and debris. Remove the needle probe to stop the flow and set the separate container in a safe place.

Step 2 – Remove the cap from the sample bottle. Place the KST Series cap onto the sample bottle and secure it firmly. Take the sample bottle with the KST Series cap and insert the needle probe into the valve. Fill the sample bottle to approximately $\frac{3}{4}$ full.

Step 3 – Remove the needle probe to stop the flow. Place the cap onto the sample bottle and tighten securely before wiping the outside of the sample bottle with the cloth.

Step 4 – Tighten the protective cap back onto the valve. Wipe the valve with a clean rag to remove any excess fluid. Discard the KST Series cap assembly in a safe manner.

Step 5 – Place one barcode label on sample bottle and the appropriate shipping label on the return package. Send the sample to the lab immediately using a trackable mail service.



Sampling with a KP Pushbutton Sampling Valve

The KP Series is a push button sampling valve that is installed on a pressurized system. The valve should be installed on a pressurized line with a minimum of 4 psi – maximum of 100 psi.

Step 1 – Have the equipment being sampled at or close to normal operating temperature. Remove the protective cap from the valve and wipe the opening with a clean, dry, lint-free cloth. Place a separate waste under the valve opening. Press the KP Series button and flush at least 3 times the fluid in the valve into the separate waste container. Dispose the waste oil properly.

Step 2 – Remove the lid from the sample bottle. Place the sample bottle under the valve opening. Press the KP Series button to dispense fluid into the sample bottle filling it to approximately $\frac{3}{4}$ full.

Step 3 – Release the KP Series button to close the valve. Place the protective cap back onto the valve and secure it firmly. Screw the cap onto the sample bottle and tighten securely before wiping the outside of the sample bottle with the cloth.

Step 4 – Place one barcode label on sample bottle and the appropriate shipping label on the return package. Send the sample to the lab immediately using a trackable mail service.

Sampling from a Drain

A drain “catch” requires no equipment beyond a sample bottle, but it produces a sample that is least representative of the fluid circulating in the machine.

Step 1 – Have the equipment being sampled at or close to normal operating temperature, if possible. Open the drain and allow approximately 1/3 of the fluid drain.

Step 2 – Quickly move an open sample bottle into the oil stream. Fill ¾ of the bottle before removing it from the stream.

Step 3 – Screw the cap onto the sample bottle and tighten securely. Wipe the outside of the sample bottle thoroughly with a clean cloth.

Step 4 – Place one barcode label on sample bottle and the appropriate shipping label on the return package. Send the sample to the lab immediately using a trackable mail service.

Shipping

New and used lubricating oils are not regulated as hazardous materials by the United States Postal Office. The flash point is well above the cutoff of 200°F (93°C). “Such nonregulated materials must be properly and securely packaged to prevent leakage under the general packaging requirements,” according to [Postal Code 343 for Flammable and Combustible Liquids \(Hazard Class 3\)](#).