



CITGO Technical Bulletin

How to Take a Sample

The Sample: Oil samples should be representative of the system from which they are taken. This can be accomplished by following a few simple procedures.

1. Ideally the equipment being sampled should be brought to operating temperature prior to collecting the sample. This will assure that any insoluble and semi-soluble materials are suspended evenly throughout the system. Samples taken from equipment that has been inactive for long periods are not representative.
2. If possible, take the sample while the machine is in operation, from an area where the oil is flowing *before* the filter.
3. Do not collect a sample from a reservoir shortly after an oil change or the addition of a large amount of makeup oil.
4. Samples for ongoing analysis should always be taken in the same manner and from the same point.
5. Do not take samples from the fluid surface or from the very bottom of the reservoir unless you desire identification of a contaminant layer occurring there.
6. Always use a clean, dry container provided by CITGO. Make sure contamination does not enter the container while the sample is being taken. Dust and rain storms can cause misinterpretations.
7. Grease samples must also be representative of the system from which they are taken. A clean scoop or paddle may be used to transfer the grease to a suitable container for shipping.
8. Completely fill out the identification form. It is important to note all fields. Hours on the oil and make up oil will determine the severity of the wear metal results. The oil must be properly identified. Add a note if the sample was taken under special circumstances, such as from the oil filter or after failure.
9. Send in the sample promptly. Do not save samples to send in multiple samples together. If there are critical problems you will receive notification.
10. Follow up on any recommendation that is made by the report. 'No action' may be the

correct follow up. An employee trained to monitor the results and the process is a very valuable asset.

Sample Container: Use appropriate containers provided by the CITGO Product Technology Laboratory to avoid contamination. Store them in a clean, dry place until ready to use them. These can be provided to you by your Territory Sales Manager or your Technical Representative.

Sampling Methods

Sample (vacuum) Gun Method – Used correctly, a sample gun or vampire allows the user to draw representative oil samples quickly and with a minimum amount of effort.

Measure a sufficient length of new clean tubing to reach from the gun into the equipment's sump or reservoir. Since the tubing is supplied in coils, it may be necessary to straighten it. If the unit has a dipstick, the tubing should be measured against the dipstick to assure proper length.



Note: Install new tubing after each use to avoid sample cross contamination.

Good practice dictates the use of a new length of tubing for each sample. If you run out of tubing or for some other reason must use the tubing again, flush it once

Loosen the nut on the sample gun head, insert one end of the tubing through the nut to about 1/2 inch past the threaded part of the gun head and tighten the nut. Screw a clean bottle into the gun adapter.

Holding the pump upright, fill the bottle to within 1/2 inch of the top. Break the vacuum by partially unscrewing the bottle or using the vacuum button. Remove the bottle, screw the cap on *flush it* and wipe the bottle clean. Fill out the bottle label and affix it to the bottle.

Sample Valve/Petcock Method – Care should be taken to install the valve at the proper point in the lube system. (Consult equipment dealer or manufacturer.) If the valve or petcock outlet is internally threaded, a pipe plug should be installed; if externally threaded, a cap should be installed or the valve handle secured to prevent accidental opening and loss of fluid during operation. This will also keep out dirt and debris. The valve exterior and area around it should be wiped or brushed clean prior to drawing a sample. Drain about one quart of fluid into a clean container to later be discarded back into the reservoir or waste oil tank. This procedure clears the valve of sediment or stagnant fluid. Now catch your sample in a new clean, dry bottle, filling it to within 1/2 inch of the top. Screw the cap on tightly, wipe clean and attach the completed label.

Oil Drain Method – Clean the area around the drain plug thoroughly to avoid sample contamination. Allow a quart or more of the oil to drain out into a container to be discarded back into the system or into a waste oil tank. Place a clean, dry sample bottle in the oil stream and fill to within 1/2 inch of the top. Screw the cap on tightly, wipe clean and attach label.

Sample Size: Investigative analysis typically requires more fluid than routine monitoring programs – therefore, a one quart sample for fluids is normally required, a gallon sample is normally required for grease. Your CITGO representative can advise you if a larger sample might be required.

Sample Identification: A copy of the Express Test or Technical Service Request (TSR) form (provided by your CITGO Account Manager) should be included with the sample. The sample must be labeled with the TSR number, the marketer's name and contact information, and the name of the end user.

DO NOT HOLD SAMPLES – SHIP THE SAME DAY THEY ARE TAKEN.

