

SAMPLING INSTRUCTIONS

VACUUM PUMP SAMPLING

FLUID CONDITION MONITORING

Drop-tube vacuum sampling is the most common method of sampling static tanks and crankcases as it does not require the installation of permanent hardware. Universal lube access through fill-ports or dipstick channels makes this method a quick and convenient option for maintenance professionals in the process of obtaining a representative sample to gain insights into the condition and overall health of components in operation. Figure 1.1 represents the sample point and the sampling method.

SAMPLING MATERIALS REQUIRED

- (1) Clean sample bottle
- (1) Vacuum pump
- (1) Polyethylene tubing coil
- (1) Tube weighting material
- (1) Dip-stick and wire twist ties
- (1) Container for the collection of flushing fluid
- (1) Bottle label / Sample form

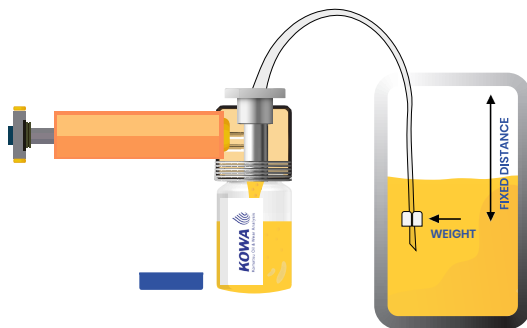


Figure 1.1 - representation of the sample point and the sampling method.

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STEP 1: In order to obtain oil samples representative of actual machine and lubricant operating conditions, samples should be taken at regularly scheduled intervals under normal operating conditions or within 30 minutes of shutdown. This allows for both accurate trend analysis and the proper evaluation of any change in lubricant and component condition as wear particles and contaminants will remain thoroughly mixed and suspended in the oil sample.

STEP 2: Using the sample documentation, please take the time to notate if the sample was not drawn at regularly scheduled intervals or within 30 minutes of shutdown.

STEP 3: Ensure the lube indicator is at the required level prior to sampling.

STEP 4: Ensure that lubrication starvation is avoided by observing the lube level indicator at the moment of drawing the sample.

STEP 5: Do not lower the polyethylene tubing coil into areas where mechanical movements from components such as pistons, shafts, gears, or bearings are present.

STEP 6: Remove the plug to enable access to the fill port where the sample will be drawn from.

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STEP 7: Cut the tubing coil on both ends at 45-degree angles to a measure that is sufficient in length.

STEP 8: Remove the lid from the sample bottle in a manner that does not touch the inner side of the lid or the interior of the bottle. Please remove the lid only when the sample bottle is ready to be filled by the sample drawn.

STEP 9: Introduce one end of the tube into the vacuum pump to allow approximately one and a half inches to project into the bottle cavity. Ensure that a proper seal is achieved by securing the tube into the pump.

STEP 10: Introduce the other end of the tube into the proper machine compartment opening to a distance that reaches a point that is halfway into the tank. If needed, attach a weight and measure the drop distance into the oil. Please note, the tube can be attached to a dip-stick, as needed, using a wire twist tie and then lowered into a fixed distance into the tank.

STEP 11: As the tube reaches the sample point into the tank, initiate the first pump to vacuum out approximately 8 ounces of oil (200 ml) into the flushing bottle to flush the tube of any pre-existing debris. Remove the flushing bottle or container once the flush is complete.

STEP 12: Again, initiate another pump to draw the sample into the bottle -- keeping the sample bottle in an upright position. Once the sample bottle is filled, please remove the bottle from the vacuum pump.

STEP 13: Secure the plug tightly to ensure that a leak free seal is created.

STEP 14: Remove the tube from the vacuum pump and dispose it properly. Never reuse the same plastic tubing.

STEP 15: Clean the vacuum pump properly with a new and disposable lint free cloth.

STEP 16: Dispose the flushing fluid properly. Never reintroduce it back into the machine.

STEP 17: Complete the sample form and sample label information. Please report if the sample was drawn in cold, describe atypical conditions, include equipment ID numbers and indicate supply test point locations.

STEP 18: Remove the barcode label from your sample information form and adhere it to the the sample bottle.

STEP 19: Pack your sample jar(s) into the proper sized box, plastic envelope, or hard plastic mailer. Apply the shipping label to your package and ensure that your return address and the laboratory address are written legibly. Ship your samples!

STEP 20: Review sample results immediately, implement corrective actions, and review maintenance recommendations without delay. Sample reports and real-time oil analysis data can be accessed by downloading the LOAMS Mobile App or by visiting www.kowaonline.net on your desktop computer.

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Our Bureau Veritas oil analysis laboratories offer all the sampling supplies required to collect oil samples including:

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- Vacuum Pumps & Tubing
- Sample Ports
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- Bar Code Scanners

Contact us to learn more about the sampling supplies we offer and how we can help improve your analysis program.
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