Client :	City :	Project :	
User :	Site :	Email:	

Sampling procedure

Preparation :

1- Wear the personal protective equipment required by your company.
2- Find a container for the oil discharge (a bucket for example). Safely dispose the oil at the end of the work or store it in another sealed container to be disposed according to environmental standards.
3- Fill in the sampling form for each equipment (forms supplied on request).
4- Using a permanent marker, CLEARLY identify on the TOP of the sampling jar the following information: the syringe number (if used) and the serial number of the transformer (The syringe number is usually formed of 4 digits OR 2 letters and 3 digits. It can be found on both parts of the syringe).
5- Check that the pressure indicator for a hermetic transformer is around zero. If the dial indicates a pressure less than zero, DANGER, avoid opening the drain valve (A bubble could penetrate in the transformer from the bottom and create a defect). If the ambient air is dry or cold, pull on the pressure regulator to allow air to enter until a pressure of zero is reached (it is sometimes required to find another inlet for ambient air). If the last 2 conditions are not met, preferably reach zero pressure using a nitrogen tank rather than ambient air. The aim is to minimize the introduction of air having a high moisture level into the hermetic space.
6- Check that the drain valve is closed, remove the cap and install a sampling valve on the drain valve if it is missing. Valves and adapters will be supplied at an additional cost. A sampling valve is required on each equipment.

Sampling :

1- Fill about one third of the oil jar (1L jar) with oil, close it, stir it and throw the oil rapidly into the container. (This step is used to rinse the jar and remove any oil that may have stagnated in the drain valve). Repeat 3 times.
2- Fill the entire oil jar so that there is minimal air space and make sure the lid is properly positioned and tightened firmly by hand.
3- Fill the syringe to more than 30 cc, move it back and forth on the moving part of the syringe so as to rinse it as much as you can. Then discard the contents of the syringe. Repeat 3 times without ever removing the syringe from the drain valve (empty through the unused channel). At the 3rd emptying, keep 5 cc of oil in the syringe to ensure no air for the next step.
4- Fill the syringe to a little over 30 cc.
5- Close the drain valve of the equipment, close the sampling valve and leave it in place.
6- Leave the syringe in a vertical position for 1 minute, until the bubbles rise to the surface. (Valve upwards).
7- Holding the syringe vertically, coat it with a rag, remove the air bubble until it reaches 30 cc (be very precise on this measurement, too little oil could prevent the lab from having enough to perform all the tests while too much could affect the test results).
8- Close the valve of the syringe (**the white plastic handle of the valve towards the syringe**), wipe it with a clean cloth and place it in its identified box.
9- Drain and wipe the piping used.

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N.B.

- At the end of the sampling, the forms must be placed immediately in their respective cardboard boxes. (**do not send separately**). Each form has a corresponding syringe or jar to which it is linked and you must not send the samples without these filled.
- The syringe valve has 3 ways. The white handle is positioned above the closed track. Ensure that the valve is properly tightened in the syringe.
- Normally, the oil comes in by itself when filling the syringe. Otherwise, pull the end of the syringe slightly. In all cases, the handle must be retained so that the filling is slow. Also make sure to avoid the separation of the syringe into two parts as this would ruin the sealing and would make the sample useless.
- The principle behind the syringe manipulation is that the ambient air should never come into contact with the sample taken. The manipulations are oriented in this direction.
- Samples for water content (ppm) are preferably taken with a syringe to prevent air moisture from affecting the results.

- If a bubble appears in a sample within a few minutes of sampling, the bubble considered as belonging to the sample (the air was surely trapped in oil) and should not be removed.
- The 1L oil jar used must be opaque or shipped in a cardboard box so as not to allow daylight to alter the sample.
- When taking oil for PCB analysis, a small container of about 3 cc (15 mm of diameter and 50 mm high) is used and no rinsing is performed during sampling. If a syringe has already been taken, the PCB analysis will be done from the syringe.
- Preferably, the sampling is done in good weather. If sampling is to take place in the rain or mist, a small temporary shelter should be installed so as not to affect sample contents and test results.

Figure 1: sampling valve, syringe and jar, each with their respective boxes