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Part of the PANOLIN concepts



## PANOLIN – Sampling Guideline

### To obtain an accurate oil analysis, it is recommended that you follow this guideline.

Modern analytics rely substantially on counting particles, moisture and elements in ppm dimension therefore cleanliness of the sampling apparatus is critical.

PANOLIN attaches great importance to oil condition monitoring, and makes the following recommendations. PANOLIN can only accept responsibility for oil condition if the correct procedures are respected by the person taking the sample. It is important both to take the sample correctly, and to record the details accurately if the results are to be of use.

### 1.1 Sample bottle

Correct sample bottles (content 500 ml) are available from PANOLIN. Before starting the sampling ensure that sample bottles are clean, dry and free of possible contaminants. Bottles such as beverage bottles, jam jars, etc. are not acceptable and will be rejected.

### 1.2 Detailed statement for the oil sample

All analysis reports will be recorded on our data base. Future reports on subsequent samples will be linked to the original by machine or by serial number or by the vessel's IMO number. It is essential to fill in the detailed statement for the oil sample completely and accurately. Without correct information it is impossible to carry out a correct oil analysis and allocate the data to previous samples. The detailed statement for the oil sample must be sent together with the oil sample.

### 2.1 Sampling engine oil



The sample must be taken under operating conditions, if at all possible, when the engine is warm and the fluid has been circulated. Only then it is possible to get a representative oil sample. We recommend taking the sample from the oil dip stick tube using an oil sampling kit (available from PANOLIN) or at the sump plug.

When sampling through the oil dip stick tube or at the sump plug the first 200 ml must be disposed of in accordance with oil disposal regulations in operation. Close the sample bottle immediately after sampling to avoid any contamination. A sample amount of min. 200 ml is recommended.

### 2.2 Sampling gear oil



The sample must be taken under operating conditions, if at all possible, when the gear box is warm and the fluid has been circulated. Only then it is possible to get a representative oil sample.

When sampling through a fitted sampling device or from the sump or in the return line **before** the filter unit the first 200 ml must be disposed of in accordance with oil disposal regulations in operation. Close the sample bottle immediately after sampling to avoid any contamination. A sample amount of min. 200 ml is recommended.

## 2.3 Sampling hydraulic oil



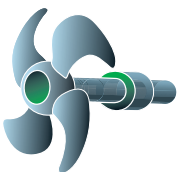
The sample must be taken immediately after steady operating conditions, when the hydraulic system is warm and the fluid has been circulated. Only then it is possible to get a representative oil sample.

The sampling point is important and has to be recorded on the detailed statement for oil sample. Samples from quick release couplings or at the end of long hoses (e.g. excavator hammer hoses) are not representative for the entire oil contents, and should not be used. We recommend sampling at the «minimess» connection. Machine manufacturers warn about the high pressures at the «minimess» connection, therefore the sample has to be taken by trained staff.

When sampling at the «minimess» connection or at the tank bottom plug the first 500 ml must be disposed of in accordance with oil disposal regulations in operation.

If water is present in the hydraulic oil, the sample should be collected at the drain valve, but only after the machine has cooled down and the oil has separated from the water. Drain off the water before taking the oil sample. A sample amount of min. 200 ml is recommended.

## 2.4 Sampling stern tube oil



Depending on the stern tube configuration there are multiple points in which you can pull the sample. We suggest not to sample from the reservoir/tank, because the fluid can be stagnant and moisture and contaminants can settle.

The sample should be collected from a drain or pump connection/valve at the bottom of the stern tube system, in a zone where the oil is circulating. If you are collecting a sample from an inline or exterior filtration system it should be collected **prior** to any filters and pumps. The first 500 ml of the oil being should be disposed of in accordance with oil disposal regulations in operation.

We understand that it is not always feasible to collect a warm or circulating sample but if possible this is the most representative sample.

We suggest sampling the oil in intervals recommended by the Classification Society of the vessel or what the vessel stern tube or stern tube seal manufacturer recommends. A sample amount of min. 200 ml is required.

## 3.0 General aspects

Please ensure that sample bottles are clean, dry and free of possible contaminants. Open them just before sampling. Close them immediately after sampling. It is highly recommended taking samples always from the same sampling point.

### Sampling frequency

We recommend to collect samples from machinery equipment frequently according to the table below:

	<b>Operational hours</b>	<b>Time period</b>
<b>Hydraulic systems</b>	~ 1000	12 months
<b>Gear boxes</b>	~ 1000	12 months
<b>Thrusters</b>	~ 1000	12 months
<b>Engines</b>	~ 250 – 500	6 months
<b>Stern tubes</b>	~ 1000 – 1500	6 months

However, manufacturer's regulations take precedence over these recommendations. Before sending the samples please take care of correct and complete information on the consignment form.

Ensure that the correct label is attached to each bottle.

Labels are available from your local PANOLIN Distributor or from PANOLIN direct.