

Technical Evaluation Criteria for Onsite Portable transformer oil Analyzer

Evaluation Methodology

The evaluation will be performed by the Eskom evaluating representatives. It begins at Level 1 followed by Level 2 and then proceeds to Level 3.

Level 1 will include the desktop evaluation of the mandatory criteria. Submissions failing to meet the requirements at Level 1 will be deemed non-responsive and will be immediately disqualified and removed from further evaluation. Submissions meeting the requirements will proceed to Level 2.

Level 2 will include a desktop evaluation of the functional criteria. The submissions will be evaluated and scored. Submissions failing to meet the stipulated threshold at Level 2 will be deemed non-compliant and will be immediately disqualified and removed from further evaluation.

The Level 2 threshold is set at 80%.

Evidence required for Level 1 and Level 2 evaluations must be submitted by the tender closing date.

Submissions meeting the requirements will proceed to Level 3.

Level 3 is the sample evaluation. The Level 3 threshold is 100%. Failure to meet the threshold of 100% will be deemed non-compliant.

Deviations or deficiencies identified during functional evaluation and/or sample evaluation must be addressed prior to contract award.

Level 1 - Mandatory Criteria and Returnable

No	Criterion	Returnable
1	Portable DGA field instrument capable of measuring seven gases and moisture.	A product brochure confirming this requirement or letter from the OEM if the required information is not contained on existing brochures. Note the letter must be on the OEM's letterhead and must be signed by the relevant OEM representative.
2	The test equipment must evaluate the sample in less than 30 minutes of mineral oil, synthetic ester (e.g. Midel 7131) and natural ester (e.g. FR3).	
3	The test unit must be portable and is suitable for outdoor use.	

Level 2 - Functional Criteria and Returnable

The functional threshold is set at 80%. Submissions failing meet the threshold will not proceed further.

Part marks will be allowed as indicated in the scoring column of the criteria table.

The total available points = 100%.

No	Criterion	Returnable	Scoring																		
● Test Unit Requirements																					
1	It uses international diagnostic tools such as the Duval Triangle, Key gases and Japanese ETRA.	A product brochure confirming this requirement or letter from the OEM if the required information is not contained on existing brochures. Note the letter must be on the OEM's letterhead and must be signed by the relevant OEM representative.	10%																		
2	Measures individually all 7 fault-gases plus water content (moisture) from a manually taken oil sample.		10%																		
3	Compatible with mineral insulating oils and newer ester-based fluids (natural and synthetic).		5%																		
4	Ability to go from high gassed samples (such as tap changers) to low gassed samples (such as main tanks) with no contamination results. Provides all results and a diagnostic based on several methods in less than 30 min.		10%																		
● Sensor and Screen Requirements																					
5	The measurements are based on Advanced Photo Acoustic Spectroscopy Technology (PAS) [4th generation] underpinned by decades of DGA experience..	A product brochure confirming this requirement or letter from the OEM if the required information is not contained on existing brochures. Note the letter must be on the OEM's letterhead and must be signed by the relevant OEM representative.	10%																		
6	It must have a 6.5-inch color screen with touch control for operation and results display [640 x 480] resolution Be able to obtain hard copy print from a built in thermal printer.		5%																		
● Features																					
8	Onboard Diagnostics for Duval’s Triangle, Roger.s Ratio, key Gas & Japanese ETRA testing methods.	A product brochure confirming this requirement or letter from the OEM if the required information is not contained on existing brochures. Note the letter must be on the OEM's letterhead and must be signed by the relevant OEM representative.	5%																		
9	Technology employed having an A) Automated Headspace Gas Extraction. B)Photo-Acoustic Spectroscopy (PAS) gas measurement (4th generation). C)Thin Film Capacitive Moisture Sensor. D)Oil and Buchholz gas injection utilizing Syringes. E)Mineral Oil and Ester fluid (natural & synthetic).		5%																		
10	<table><tr><td>GAS MEASURED</td><td>MEASUREMENT RANGE</td></tr><tr><td>Hydrogen (H2)</td><td>5 – 5,000 ppm</td></tr><tr><td>Methane (CH4)</td><td>2 – 50,000 ppm</td></tr><tr><td>Ethane (C2H6)</td><td>2 – 50,000 ppm</td></tr><tr><td>Ethylene (C2H4)</td><td>2 – 50,000 ppm</td></tr><tr><td>Acetylene (C2H2)</td><td>0.5 – 50,000 ppm</td></tr><tr><td>Carbon Monoxide (CO)</td><td>2 – 50,000 ppm</td></tr><tr><td>Carbon Dioxide (CO2)</td><td>40 – 50,000 ppm</td></tr><tr><td colspan="2">Measurement Accuracy - ±5% or ±LDL (whichever is greater) Water: ±3 % RH or ±3 ppm</td></tr></table>		GAS MEASURED	MEASUREMENT RANGE	Hydrogen (H2)	5 – 5,000 ppm	Methane (CH4)	2 – 50,000 ppm	Ethane (C2H6)	2 – 50,000 ppm	Ethylene (C2H4)	2 – 50,000 ppm	Acetylene (C2H2)	0.5 – 50,000 ppm	Carbon Monoxide (CO)	2 – 50,000 ppm	Carbon Dioxide (CO2)	40 – 50,000 ppm	Measurement Accuracy - ±5% or ±LDL (whichever is greater) Water: ±3 % RH or ±3 ppm		10%
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Measurement Accuracy - ±5% or ±LDL (whichever is greater) Water: ±3 % RH or ±3 ppm																					
11	Operating Temperature From 5°C to +50°C.	10%																			
● Data and Storage																					
12	Log file retrieval - USB 2.0 Memory Stick and Perception	A product brochure confirming this requirement or letter	5%																		
13	Measurement Download - USB 2.0 Memory Stick.		5%																		

	Perception [Direct Perception Sync] Local USB communications to export the data into a PC, Be able to Export a CSV file format report.	from the OEM if the required information is not contained on existing brochures. Note the letter must be on the OEM's letterhead and must be signed by the relevant OEM representative.	
• Components			
14	The following components are included with the analyser: 1. Buchholz Kit (KITT00005) Collection and analysis of Buchholz gas samples 2. System Check Kit (KITT00002) It is used to verify the calibration accuracy of the product using a canister of sample gas with 2 additional rolls printing paper. 3. Transit case-It provides extra protection during air travel and/or harsh environment transportation (meets IP67 when closed), and can accommodate the unit and up to two accessories cases. 4. Cooler box-It is used for storing and cooling hot oil samples for immediate analysis. This can also be used as a secure transportation container for the sample.	A product brochure confirming this requirement or letter from the OEM if the required information is not contained on existing brochures. Note the letter must be on the OEM's letterhead and must be signed by the relevant OEM representative.	Total = 10% 2% per item

Level 3 - Sample Criteria and Returnable

The functional threshold is set at 100%. Submissions failing meet the threshold will not proceed further.

No part marks are allowed.

Eskom reserves the right to allow concessions related to deviations at this stage.

Note – due to the high cost of the item, Eskom reserves the right to perform the sample evaluation over MS Teams or in person, in a manner that effectively demonstrates the compliance of the product offered. The supplier will be allowed to be present to perform the required demonstrations.

No	Criterion	Returnable	Scoring Model
1	All components and parts stated in the evidence at stage 2 are supplied with the sample.	Oil Analyser along with: 1. Buchholz Kit (KITT00005) Collection and analysis of Buchholz gas samples including 2 Syringes. 2. System Check Kit (KITT00002).It is used to verify the calibration accuracy of the product	25%

		using 3. a canister of sample gas with additional rolls printing paper. 4. Transit case-It provides extra protection during air travel and/or harsh environment transportation (meets IP67 when closed) and can accommodate the unit and up to two accessories cases. 5. Cooler box-It is used for storing and cooling hot oil samples for immediate analysis. This can also be used as a secure transportation container for the sample. 6. 5 Year back to base warranty on the unit. 7. Required tools including 24 teflon filters and 2 rolls of printing paper. 8. Operation manual 9. Software licence for 2 users	
2	Analyser effectively identifies oil samples in real-time.	Demonstration	50%
3	Oil Sample analysed within 30 minutes and results downloaded to computer.	Demonstration	25%