

LAB REPORT

Unit id
WATER TURBINE
Component
lubricating oil



Lab number: 1704502

Machine type
VZ 71

Manufacturer
Escher Wyss

Oil brand name
Shell Turbo T 46

Sample Report
Scope of Analysis: Turbine Set 6

Oil quantity in system
3500 l

Wear metals are only present in negligible concentrations. Therefore, hardly any abrasive or corrosive wear is evident. The cleanliness class of the oil meets the requirements. The water content is within the normal range. The water separation capability is within the expected range. All other determined data are within the permissible or expected values. If no oil change has been carried out yet, continued use of the oil under similar operating conditions while maintaining usual maintenance work would be possible. I advise you: Send us the next sample at your next maintenance or on the occasion of the regular inspection to observe the trend behavior.

Dipl.-Ing. Andy Böhme (CLS)



NORMAL

ANALYSIS RESULTS			Current sample	Previous samples →				
Lab number			1704502	1704507	1704508	1704509	1704510	
SAMPLE RATING			✓	✓	✓	✓	✓	
Date of examination			28.07.2025	22.07.2024	01.03.2023	09.12.2022	12.08.2021	
Date of sample taken			20.07.2025	12.07.2024	23.02.2023	27.11.2022	23.07.2021	
Date of last oil change			21.05.2017	21.05.2017	21.05.2017	21.05.2017	21.05.2017	
Top-up since change			-	-	-	-	-	
Operating time since change			71520 h	62710 h	50830 h	48690 h	45760 h	
Total operating time			-	-	-	-	-	
Oil changed			no	no	no	no	no	
WEAR								
Iron	Fe	mg/kg	0	0	0	0	0	
Chrome	Cr	mg/kg	0	0	0	0	0	
Tin	Sn	mg/kg	0	0	0	0	0	
Aluminum	Al	mg/kg	0	0	0	0	0	
Nickel	Ni	mg/kg	0	0	0	0	0	
Copper	Cu	mg/kg	0	1	0	0	0	
Lead	Pb	mg/kg	1	0	0	0	0	
Molybdenum	Mo	mg/kg	0	0	0	0	0	
Manganese	Mn	mg/kg	0	0	0	0	-	
PQ index	-	-	< 25	< 25	< 25	< 25	< 25	
CONTAMINATION								
Silicon	Si	mg/kg	0	0	0	0	0	
Potassium	K	mg/kg	0	0	0	1	1	
Sodium	Na	mg/kg	0	1	0	0	0	
Lithium	Li	mg/kg	0	0	0	0	0	
Water K. F.		ppm	< 30	< 30	< 30	40	< 30	
OIL CONDITION								
Viscosity at 40 °C		mm ² /s	46.11	45.81	45.59	46.09	46.09	
Viscosity at 100 °C		mm ² /s	6.97	6.95	6.95	7.03	6.99	
Viscosity index		-	108	108	109	110	109	
Oxidation		A/cm	1	1	1	1	1	
IR index		-	99.94	99.89	98.26	-	-	
Color		Farbzahl	0.5	0.5	0.5	0.5	0.5	

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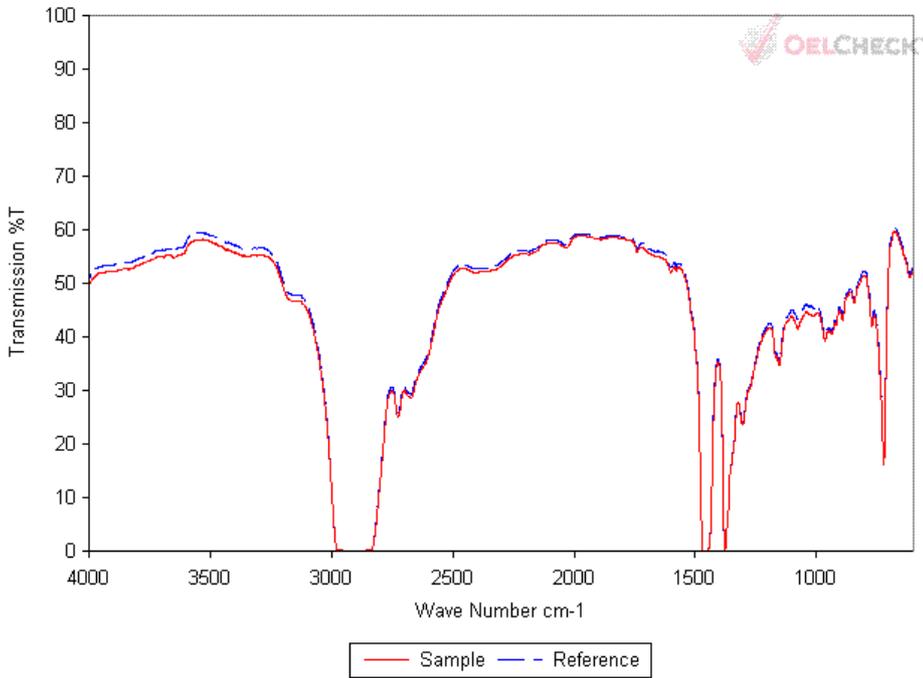
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ADDITIVES								
Calcium	Ca	mg/kg	0	0	1	0	1	
Magnesium	Mg	mg/kg	0	0	0	0	0	
Boron	B	mg/kg	0	0	0	0	0	
Zinc	Zn	mg/kg	2	2	0	1	1	
Phosphorus	P	mg/kg	0	0	0	0	0	
Barium	Ba	mg/kg	0	0	0	0	0	
Sulphur	S	mg/kg	< 10	10	41	< 10	44	
ADDITIONAL TESTS								
AN / NN		mgKOH/g	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Water separation (steam)		s	101	86	62	59	101	
Cleanliness class		ISO 4406	16/14/11	17/15/12	17/15/12	17/15/12	17/16/13	
A: >4µm = ISO >4µm		Anzahl/100ml	56897	83506	72319	70341	125528	
B: >6µm = ISO >6µm		Anzahl/100ml	14632	22074	22251	26441	44186	
C: >14µm = ISO >14µm		Anzahl/100ml	1065	2139	2853	3695	5745	
D: >21µm		Anzahl/100ml	328	592	947	1254	1656	
E: >38µm		Anzahl/100ml	24	114	97	41	108	
F: >70µm		Anzahl/100ml	0	0	0	15	0	
Cleanliness class		SAE AS 4059	7A	7A	7A	8D	8A	
Antioxidant 1 - RULER		%	107.0	108.8	103.8	96.6	102.7	
Antioxidant 2 - RULER		%	49.2	52.8	69.7	60.4	81.1	



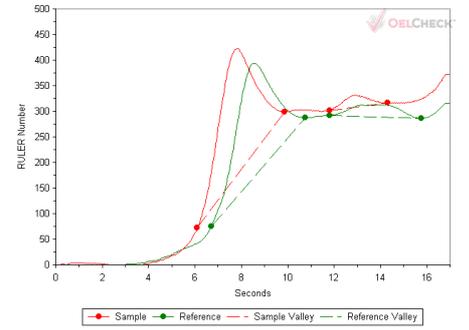
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SAMPLE IMAGES (LABORATORY NUMBER: 1704502)



INFRARED SPECTRUM



RULER DIAGRAM



BOTTLE AND CAP



Any questions?

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