

Unit ID **Water turbine**  
 Component **Lubricating oil**  
 Current sample number **1704502**

+49 8034-9047-210

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OELCHECK GmbH · Kerschelweg 28 · 83098 Brannenburg

Machine type: **VZ 71**  
 Manufacturer: **Escher Wyss**  
 Oil brand name: **Shell Turbo T 46**  
 Oil quantity in system: **3500 l**

Example report  
 Analysis scope: Turbine Oil Kit 6

### Diagnosis for the current laboratory values

Wear metals are only present in negligible concentrations. Hardly any abrasive or corrosive wear is therefore visible. The cleanliness class of the oil complies with the requirements. The water content is within the normal range. The water separability is within the expected range. All the other data detected are within the permissible or expected value range. If no oil change has happened yet, it is possible to continue using the oil under similar operating conditions and under continuation of the usual maintenance schedule. I recommend that you send the next sample at the next service interval or at your regular inspection for trend analysis.

Dipl.-Ing. Andy Böhme (CLS)

### Sample Rating



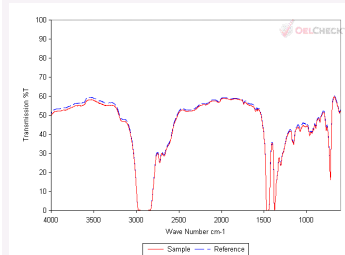
**normal**

ANALYSIS RESULTS			Current sample	1 previous samples not shown		
LAB NUMBER			1704502	1704507	1704508	1704509
SAMPLE RATING						
Date tested			27.07.2023	20.07.2022	01.03.2021	09.12.2020
Date of sample taken			20.07.2023	12.07.2022	23.02.2021	27.11.2020
Date of last oil change			21.05.2015	21.05.2015	21.05.2015	21.05.2015
Top-up since change			-	-	-	-
Operating time since change	h		71520	62710	50830	48690
Total operating time			-	-	-	-
Oil changed			no	no	no	no
WEAR						
Iron	Fe	mg/kg	0	0	0	0
Chrom	Cr	mg/kg	0	0	0	0
Tin	Sn	mg/kg	0	0	0	0
Aluminum	Al	mg/kg	0	0	0	0
Nickel	Ni	mg/kg	0	0	0	0
Copper	Cu	mg/kg	0	1	0	0
Lead	Pb	mg/kg	1	0	0	0
Molybdenum	Mo	mg/kg	0	0	0	0
Manganese	Mn	mg/kg	0	0	0	0
PQ index	-		< 25	< 25	< 25	< 25
CONTAMINATION						
Silicon	Si	mg/kg	0	0	0	0
Potassium	K	mg/kg	0	0	0	1
Sodium	Na	mg/kg	0	1	0	0
Lithium	Li	mg/kg	0	0	0	0
Water K. F.	ppm		< 30	< 30	< 30	40
OIL CONDITION						
Viscosity at 40°C	mm²/s		46.11	45.81	45.59	46.09
Viscosity at 100°C	mm²/s		6.97	6.95	6.95	7.03
Viscosity index	-		108	108	109	110
Oxidation	A/cm		1	1	1	1
IR index	-		99.94	99.89	98.26	-
Color	Color index		0.5	0.5	0.5	0.5
ADDITIVES						
Calcium	Ca	mg/kg	0	0	1	0
Magnesium	Mg	mg/kg	0	0	0	0
Boron	B	mg/kg	0	0	0	0
Zinc	Zn	mg/kg	2	2	0	1
Phosphorus	P	mg/kg	0	0	0	0
Barium	Ba	mg/kg	0	0	0	0
Sulphur	S	mg/kg	< 10	10	41	< 10

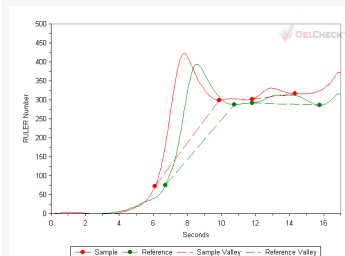
Bottle and cap



Infrared Spectrum



RULER Diagram



# LAB REPORT

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ANALYSIS RESULTS		Current sample	1 previous samples not shown		
LAB NUMBER		1704502	1704507	1704508	1704509
SAMPLE RATING		✓	✓	✓	✓
Date tested		27.07.2023	20.07.2022	01.03.2021	09.12.2020
Date of sample taken		20.07.2023	12.07.2022	23.02.2021	27.11.2020
Date of last oil change		21.05.2015	21.05.2015	21.05.2015	21.05.2015
Top-up since change		-	-	-	-
Operating time since change	h	71520	62710	50830	48690
Total operating time		-	-	-	-
Oil changed		no	no	no	no
ADDITIONAL TESTS					
AN / NN	mgKOH/g	< 0.10	< 0.10	< 0.10	< 0.10
Water separation (steam)	s	101	86	62	59
Cleanliness class	ISO 4406	16/14/11	17/15/12	17/15/12	17/15/12
A: >4µm = ISO >4µm	Particles/100ml	56897	83506	72319	70341
B: >6µm = ISO >6µm	Particles/100ml	14632	22074	22251	26441
C: >14µm = ISO >14µm	Particles/100ml	1065	2139	2853	3695
D: >21µm	Particles/100ml	328	592	947	1254
E: >38µm	Particles/100ml	24	114	97	41
F: >70µm	Particles/100ml	0	0	0	15
Cleanliness class	SAE AS 4059	7A	7A	7A	8D
Antioxidant 1 - RULER	%	107.0	108.8	103.8	96.6
Antioxidant 2 - RULER	%	49.2	52.8	69.7	60.4



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### Evaluation of the oxidation inhibitors

Compared to the reference sample, only a slight degradation of antioxidants is visible. There is still enough aging protection in the oil.

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Date of sample taken		20.07.2023
Date of last oil change		21.05.2015
Top-up since change		-
Operating time since change	h	71520
Total operating time		-
Oil changed		no

Antioxidant/RULER		
Antioxidant 1 - RULER	%	107,0
Antioxidant 2 - RULER	%	49,2
Electrolyte solution		Green
Sample volume	µl	400

### Antioxidant/FT-IR

