

Unit ID **Wind energy system**
 Component **Hydraulics**
 Current sample number **1704330**

+49 8034-9047-210

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OELCHECK GmbH · Kerschelweg 28 · 83098 Brannenburg

Machine type: **V90 MK7**
 Manufacturer: **Vestas**
 Oil brand name: **Castrol Hyspin AWH-M 32 Superclean**
 Previously used oil: **Castrol Hyspin AWH-M 32**
 Oil quantity in system: **315 l**

Example report
 Analysis scope: Wind power analysis kit

Diagnosis for the current laboratory values

There is no significant change in comparison to the previous sample. 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. 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	Previous samples		
LAB NUMBER			1704330	1704331	1704332	1704333
SAMPLE RATING						
Date tested			30.08.2019	04.07.2018	18.04.2018	17.03.2017
Date of sample taken			24.08.2019	29.06.2018	04.04.2018	13.03.2017
Date of last oil change			21.06.2018	29.06.2018	-	-
Top-up since change			-	-	-	-
Operating time since change			h 10131	23	44956	35476
Total operating time			h 56976	46868	44956	35476
Oil changed			-	yes	-	no
WEAR						
Iron	Fe	mg/kg	0	0	1	1
Chrome	Cr	mg/kg	0	0	1	1
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	1	3	6	4
Lead	Pb	mg/kg	0	0	0	0
Molybdenum	Mo	mg/kg	0	0	0	0
Antimony	Sb	mg/kg	-	-	1	-
Manganese	Mn	mg/kg	0	0	0	0
PQ index	-	-	< 25	< 25	< 25	< 25
CONTAMINATION						
Silicon	Si	mg/kg	0	0	1	1
Potassium	K	mg/kg	0	0	0	0
Sodium	Na	mg/kg	0	0	3	4
Tungsten	W	mg/kg	-	-	-	1
Water K. F.	ppm		81	87	-	-
Water	%		-	-	< 0.10	< 0.10
OIL CONDITION						
Viscosity at 40°C	mm²/s		29.88	32.02	30.23	30.62
Viscosity at 100°C	mm²/s		5.92	6.40	6.89	6.96
Viscosity index	-		148	157	199	199
Oxidation	A/cm		3	3	1	1
IR index	-		98.58	98.02	99.92	99.94
ADDITIVES						
Calcium	Ca	mg/kg	40	49	48	48
Magnesium	Mg	mg/kg	0	0	0	0
Boron	B	mg/kg	0	0	0	0
Zinc	Zn	mg/kg	488	510	464	460
Phosphorus	P	mg/kg	371	388	328	323
Barium	Ba	mg/kg	0	0	0	0
Sulphur	S	mg/kg	3671	3567	1701	1725



LAB REPORT

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Top-up since change		-	-	-	-
Operating time since change	h	10131	23	44956	35476
Total operating time	h	56976	46868	44956	35476
Oil changed		-	yes	-	no
ADDITIONAL TESTS					
AN / NN	mgKOH/g	0.61	0.59	-	-
Cleanliness class	ISO 4406	18/16/12	16/15/12	16/14/10	16/14/11
A: >4µm = ISO >4µm	Particles/100ml	233231	58344	60055	38751
B: >6µm = ISO >6µm	Particles/100ml	41730	20397	14310	12634
C: >14µm = ISO >14µm	Particles/100ml	2859	2947	898	1208
D: >21µm	Particles/100ml	815	1070	243	370
E: >38µm	Particles/100ml	41	121	64	18
F: >70µm	Particles/100ml	0	17	0	18
Cleanliness class	SAE AS 4059	9A	7A	7A	7F