Before

Laboratory report

Customer number 22397
Perstorp Chemicals Ltd.

Bruchhausener Strasse 2
59759 Amsberg

Sales manager: Wohlgemuth, Wolfgang

System number LC63877
Turbine, large
AEG

BP Turbinol 46

Filling date 01.10.2008

Filling amount 2.500 l

Comment

The oil shows a mixture or contamination with calcium (28 mg/kg), zinc (17 mg/kg), and phosphor (34 mg/kg).

All other measured data show a still further usable condition, but the water separation ability and the foam test could not be carried out because there is not enough sample material (please send 1 liter of oil for turbine oil analyses).

An oil change is recommended due to the contamination.

Product number
Sampling
Date of receipt
Oil operating hours

Appearance
[-] visual
Color
[-] DIN ISO 2049
Kin. viscosity at 40°C
[mm^2/s] DIN 51366
Neutralization number (acidic)
[mg KOH/g] DIN 51558-1
Water content
[ppm] DIN 51777-1
Oxidation/aging (IR)
[A/cm] DIN 51451/CIP
IRON
[ppm] ICP
Aluminium
[ppm] ICP
Chrome
[ppm] ICP
Copper
[ppm] ICP
Nickel
[ppm] ICP
Lead
[ppm] ICP

Silicon
[ppm] ICP
Tin
[ppm] ICP
PQ index
[-] –

TL5985	TL5368	TL5037
II	II	II
402677	402677	402677
22.12.2010	14.09.2010	23.06.2010
29.12.2010	20.09.2010	26.07.2010
	14000	
0	2	2
4,5	3,0	4,0
45,99	47,71	46,78
0,12	0,07	0,10
9	3735 II	7563 II
< 1,0	< 1,0	< 1,0
5	< 1	< 1
< 1	< 1	< 1
< 1	< 1	< 1
< 1	< 1	< 1
< 1	< 1	< 1
1	< 1	1
< 1	< 1	< 1
< 1	< 1	< 1
3	2	2

Laboratory report

Customer number 22397 **System number LC63877**

Turbine, large

Particle analysis (4µm / 6µm / 14µm)
[Classification according to ISO 4406]
ISO 4406

Phen. antioxidants (IR)
[%] DIN 51451/CIP

Air separation ability (50°C)
[min] DIN ISO 9120

Foaming behavior (Seq.l/25°C)
[ml] ISO 6247

Water separation ability
[s] DIN 51589-1

TL5985	TL5368	TL5037
21/19/16	22/22/22	22/22/22
74,00	100,00	93,00
4	4	4
x	360/0	80/0
x	150	120

The given values are based on the individual examined sample and on the application and operating conditions given to us. Please note that the application and operating conditions were not checked by us. The given values can vary in the case of changes of the application and operating conditions.

Afterwards

Evaluation – oil analysis

Sample number | 201306011 | **Sampling** | 10.06.2013	
Construction | | **System** | PERGES | Perstorp, whole location	
System position | Turbine 2 | Turbine 2	
Maintenance position | Turbine 2 | Lubrication point | Turbine | S-No. | 156	
Sampling point | Oil tank	
Analysis program | AS2, pump, gear | oil data | Turbinol X-EP 46	
Inspection dates | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec	

Summary

Evaluation : The oil is in an operative condition
Advice : No further action is necessary
Wear : The amount of wear metals is not yet notable

Evaluation of the analysis parameters

[+] The visual appearance is okay
[+] The kinematical viscosity is okay
[+] The chemical composition (IR) of the oil does not show any noteworthy deviations
[+] The oxidation stability (Ox) is okay
[+] The oxidation- and aging condition (NZ) is okay
[+] The water content (H2O) is sufficiently low
[+] The proportion of elements in the ICP analysis shows no abnormalities
[+] The additivation is okay
[+] The PQ index (PQ) is okay

Advice

None

For questions on the evaluation

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System : PERGES, Position: Turbine 2, Lubrication point: Turbine 2

Analysis parameters	still operational	performance limited	performance strongly limited	observation consultation	no longer operational

Sample number	**Date**	**Evaluation (short)**	**Appearance (visually)**	**Viscosity**							**Foam test**							
201306011	10.06.13	☺	klar	45,0	6,77	104	+	1	0,07		0,01							
201109017	27.09.11	☺	klar								0,01							
201108016	08.08.11	☺	leicht trüb	46,1			+		0,24		0,02							

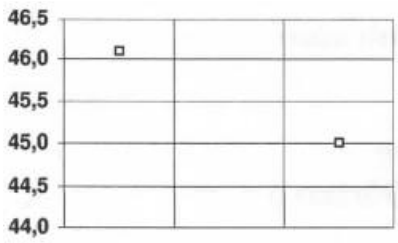
Water eliminated

Proportion of elements in the ICP analysis

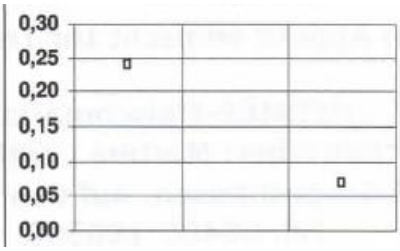
Sample number	**Wear**							**Additives**								**Dirt**						**PQ index**
nummer	Al	Cu	Fe	Pb	Cr	Ni	Sn	Ti	V	Mn	Mo	B	Ba	Ca	Mg	P	S	Zn	Cd	K	Li	Na	Si	Index
201306011	0	0	1	0	0	0	0				0	0	0	0	0	1	607	2		0	0	0	3	<25
201109017	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	75		6				0	0	
201108016	0	0	3	0	0	0	0	0	0	0	0	0	0	3	0	130		12				2	0	

Trend

Viscosity at 40°C



Neutralization number



Water content