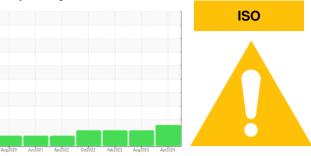


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

6 (S/N 9003) Refrigeration Compressor USPI 1009-68 SC (--- GAL)

DIAGNOSIS

A Recommendation

We recommend you service the filters on this component. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is a high amount of particulates present in the oil.

Fluid Condition

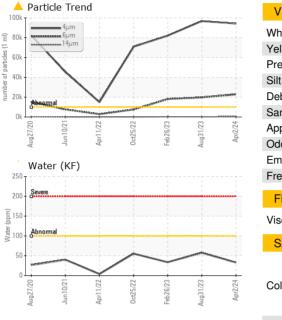
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

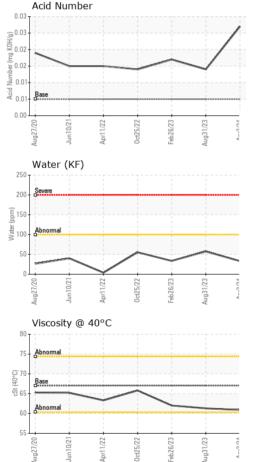
Sample Date Client Info 02 Apr 2024 31 Aug 2023 26 Feb 202 Machine Age hrs Client Info 0 0 0 Oil Age hrs Client Info 0 0 0 Oil Changed Client Info N/A N/A N/A Sample Status Client Info N/A ABNORMAL ABNORMAL ABNORMAL WEAR METALS method Imit/base current history1 history1 Iron ppm ASTM 05185m >2 <1 0 0 Nickel ppm ASTM 05185m >2 0 0 0 Aluminum ppm ASTM 05185m >2 0 0 0 Lead ppm ASTM 05185m >2 <1 <1 <1 <1 Vanadium ppm ASTM 05185m <4 <1 0 0 Addimium ppm ASTM 05185m <1 0 0 0 Vanadium	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0 0 0 0 Oil Age hrs Client Info N/A N/A N/A N/A Sample Status Imit/base current ABNORMAL A	Sample Number		Client Info		USP0008091	USP0000346	USP246818
Oil Age hrs Client Info 0 0 0 Oil Changed Client Info N/A N/A N/A N/A Sample Status Imathematical Control ABNORMAL ABNORMAL ABNORMAL ABNORMAL WEAR METALS method limit/base current history1 history1 Iron ppm ASTM 05185m >8 34 2.8 2.4 Chromium ppm ASTM 05185m >2 -1 0 0 Nickel ppm ASTM 05185m >2 0 0 0 Silver ppm ASTM 05185m >3 0 0 -1 Copper ppm ASTM 05185m >3 0 0 0 Cadmium ppm ASTM 05185m >4 -1 0 0 ADDITIVES method limit/base current history1 history1 Barium ppm ASTM 05185m 0 0 0 0 <td>Sample Date</td> <td></td> <td>Client Info</td> <td></td> <th>02 Apr 2024</th> <td>31 Aug 2023</td> <td>26 Feb 2023</td>	Sample Date		Client Info		02 Apr 2024	31 Aug 2023	26 Feb 2023
Oil Changed Client Info N/A N/A N/A N/A Sample Status method limit/base current history1 history1 WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >8 34 28 24 Chromium ppm ASTM D5185m >2 <1	Machine Age	hrs	Client Info		-	-	0
Oli Changed Client Info N/A N/A N/A N/A Sample Status Image Status Image Status Image Status ABNORMAL ABNORMAL ABNORMAL ABNORMAL ABNORMAL WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >8 34 28 24 Chromium ppm ASTM D5185m >1 0 0 0 Nickel ppm ASTM D5185m >2 0 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 0 Lead ppm ASTM D5185m >4 <1	Oil Age	hrs	Client Info		0	0	0
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >8 34 28 24 Chromium ppm ASTM D5185m >2 <1	Oil Changed		Client Info		N/A	N/A	N/A
Iron ppm ASTM D5185m >8 34 28 24 Chromium ppm ASTM D5185m <1	-				ABNORMAL	ABNORMAL	ABNORMAL
Chromium ppm ASTM D5185m >2 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m <1 0 0 Titanium ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 -1 Lead ppm ASTM D5185m >2 <1	Iron	ppm	ASTM D5185m	>8	34	28	24
Titanium ppm ASTM D5185m <1 0 0 Silver ppm ASTM D5185m >2 0 0 <1	Chromium	ppm	ASTM D5185m	>2	<1	0	0
Titanium ppm ASTM D5185m <1 0 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 <1	Nickel		ASTM D5185m		<1	0	0
Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >3 0 0 <1	Titanium		ASTM D5185m		<1	0	0
Aluminum ppm ASTM D5185m >3 0 0 <1 Lead ppm ASTM D5185m >2 <1				>2			
Lead ppm ASTM D5185m >2 <1 <1 <1 Copper ppm ASTM D5185m >8 <1							
Copper ppm ASTM D5185m >8 <1 <1 <1 Tin ppm ASTM D5185m >4 <1							
Tin ppm ASTM D5185m >4 <1 0 0 Vanadium ppm ASTM D5185m <1							
Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1							
Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m <1 0 0 0 Magnese ppm ASTM D5185m <1 0 0 0 Magnesium ppm ASTM D5185m <1 0 0 0 Calcium ppm ASTM D5185m <1 0 0 0 0 Contram ppm ASTM D5185m 0 0 0 0 0 Contramina ppm ASTM D5185m 0 0 0 0 0 Silicon ppm ASTM D5185m 50 0 10 10 Sodium ppm ASTM D5185m >20 1 1 <1 Sodium ppm ASTM D6185m >20 1<				e 1			
ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m <1							
Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m <1 0 0 Manganese ppm ASTM D5185m <1 0 0 Magnesium ppm ASTM D5185m <1 0 0 Calcium ppm ASTM D5185m 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 10 10 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >15 1 0 <1 Sodium ppm ASTM D5185m >20 1 1 <1 Water % ASTM D6304 >0.01 0.003 0.005 0.003 ppm ASTM D7647 >10000 94215 96784 82052 Particles >4µm ASTM D7647 2500	ADDITIVES		method	limit/base	current	history1	history2
Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m <1	Boron	ppm	ASTM D5185m		0	0	0
Molybdenum ppm ASTM D5185m <1 0 0 Manganese ppm ASTM D5185m <1	Barium		ASTM D5185m		0	0	0
Manganese ppm ASTM D5185m <1 0 <1 Magnesium ppm ASTM D5185m <1 0 0 Calcium ppm ASTM D5185m 0 0 0 0 Phosphorus ppm ASTM D5185m 0 0 1 1 Zinc ppm ASTM D5185m 11 10 7 10 Sulfur ppm ASTM D5185m 50 0 10 10 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >15 1 0 <1 Sodium ppm ASTM D5185m >20 1 1 <1 <1 Sodium ppm ASTM D6304 >0.01 0.003 0.005 0.003 Spm Water ppm ASTM D6304 >100 33 57.5 33.7 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 >200 225					<1	0	0
Magnesium ppm ASTM D5185m <1 0 0 Calcium ppm ASTM D5185m 0 0 0 1 Phosphorus ppm ASTM D5185m 0 0 1 7 Sulfur ppm ASTM D5185m 50 0 10 10 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m 50 0 0 0 Sodium ppm ASTM D5185m >15 1 0 <1	,				<1	0	<1
Calcium ppm ASTM D5185m 0 0 0 0 Phosphorus ppm ASTM D5185m 0 0 1 1 Zinc ppm ASTM D5185m 0 0 10 7 Sulfur ppm ASTM D5185m 50 0 10 10 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >15 1 0 <1	•						
Phosphorus ppm ASTM D5185m 0 0 1 Zinc ppm ASTM D5185m 11 10 7 Sulfur ppm ASTM D5185m 50 0 10 10 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >15 1 0 <1	0						
Zinc ppm ASTM D5185m 11 10 7 Sulfur ppm ASTM D5185m 50 0 10 10 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >15 1 0 <1					-		
Sulfur ppm ASTM D5185m 50 0 10 10 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >15 1 0 <1 Sodium ppm ASTM D5185m >15 1 0 <1 Potassium ppm ASTM D5185m >20 1 1 <1 <1 Water % ASTM D5185m >20 1 1 <1 <1 Water % ASTM D6304 >0.01 0.003 0.005 0.003 ppm Water ppm ASTM D6304 >100 33 57.5 33.7 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 >10000 94215 96784 82052 Particles >6µm ASTM D7647 >2500 22876 19715 18110 Particles >1µm ASTM D7647					-	-	
Silicon ppm ASTM D5185m >15 1 0 <1 Sodium ppm ASTM D5185m >20 1 0 0 Potassium ppm ASTM D5185m >20 1 1 <1 Water % ASTM D6304 >0.01 0.003 0.005 0.003 ppm Water ppm ASTM D6304 >100 33 57.5 33.7 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 >10000 94215 96784 82052 Particles >6µm ASTM D7647 >2500 22876 19715 18110 Particles >1µm ASTM D7647 >320 372 225 299 Particles >21µm ASTM D7647 >20 0 0 0 Particles >38µm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >201/18/15 24/22/16 24/21/15 24/21/15 FLUID DEGRADATION method limit/base current	-			50			
Sodium ppm ASTM D5185m <1 0 0 Potassium ppm ASTM D5185m >20 1 1 <1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 1 1 <1 Water % ASTM D6304 >0.01 0.003 0.005 0.003 ppm Water ppm ASTM D6304 >100 33 57.5 33.7 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 >10000 94215 96784 82052 Particles >6µm ASTM D7647 >2500 22876 19715 18110 Particles >14µm ASTM D7647 >200 372 225 299 Particles >14µm ASTM D7647 >20 0 0 0 Particles >21µm ASTM D7647 >20 0 0 0 0 Particles >38µm ASTM D7647 >4 0 0 0 0 0 0 Oil Cleanliness ISO 4406 (c) >201/18/15 24/22/16 24/21/15 24/21/15 FLUID DEGRADATION metho	Silicon	ppm	ASTM D5185m	>15	1	0	<1
Water % ASTM D6304 >0.01 0.003 0.005 0.003 ppm Water ppm ASTM D6304 >100 33 57.5 33.7 FLUID CLEANLINESS method limit/base current history1 history Particles >4µm ASTM D7647 >10000 94215 96784 82052 Particles >6µm ASTM D7647 >2500 22876 19715 18110 Particles >14µm ASTM D7647 >320 372 225 299 Particles >21µm ASTM D7647 >80 25 20 39 Particles >38µm ASTM D7647 >20 0 0 0 Particles >71µm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 24/22/16 24/21/15 24/21/15 FLUID DEGRADATION method limit/base current history1 history1	Sodium	ppm	ASTM D5185m		<1	0	0
Water % ASTM D6304 >0.01 0.003 0.005 0.003 ppm Water ppm ASTM D6304 >100 33 57.5 33.7 FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 >10000 ● 94215 ● 96784 ▲ 82052 Particles >6µm ASTM D7647 >2500 ▲ 22876 ▲ 19715 ▲ 18110 Particles >14µm ASTM D7647 >320 ▲ 372 225 299 Particles >21µm ASTM D7647 >80 25 20 39 Particles >38µm ASTM D7647 >20 0 0 0 Particles >71µm ASTM D7647 >4 0 0 0 24/21/15 24/21/15 24/21/15 24/21/15 FLUID DEGRADATION method limit/base current history1 history1	Potassium	ppm	ASTM D5185m	>20		1	<1
FLUID CLEANLINESS method limit/base current history1 history1 Particles >4µm ASTM D7647 >10000 ● 94215 ● 96784 ▲ 82052 Particles >6µm ASTM D7647 >2500 ▲ 22876 ▲ 19715 ▲ 18110 Particles >6µm ASTM D7647 >320 ▲ 372 225 299 Particles >14µm ASTM D7647 >80 25 20 39 Particles >21µm ASTM D7647 >20 0 0 0 Particles >38µm ASTM D7647 >20 0 0 0 Particles >71µm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 24/22/16 24/21/15 24/21/15 FLUID DEGRADATION method limit/base current history1 history1	Water		ASTM D6304	>0.01	0.003	0.005	0.003
Particles >4µm ASTM D7647 >10000 ▲ 94215 ▲ 96784 ▲ 82052 Particles >6µm ASTM D7647 >2500 ▲ 22876 ▲ 19715 ▲ 18110 Particles >14µm ASTM D7647 >320 ▲ 372 225 299 Particles >21µm ASTM D7647 >80 25 20 39 Particles >38µm ASTM D7647 >20 0 0 0 Particles >71µm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 24/22/16 24/21/15 24/21/15	ppm Water	ppm	ASTM D6304	>100	33	57.5	33.7
Particles >6μm ASTM D7647 >2500 ▲ 22876 ▲ 19715 ▲ 18110 Particles >14μm ASTM D7647 >320 ▲ 372 225 299 Particles >21μm ASTM D7647 >80 25 20 39 Particles >38μm ASTM D7647 >20 0 0 0 Particles >38μm ASTM D7647 >20 0 0 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 24/22/16 24/21/15 24/21/15 FLUID DEGRADATION method limit/base current history1 history1	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >14μm ASTM D7647 >320 ▲ 372 225 299 Particles >21μm ASTM D7647 >80 25 20 39 Particles >38μm ASTM D7647 >20 0 0 0 Particles >38μm ASTM D7647 >20 0 0 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 24/22/16 24/21/15 24/21/15 FLUID DEGRADATION method limit/base current history1 history1	Particles >4µm		ASTM D7647	>10000	<u> </u>	▲ 96784	▲ 82052
Particles >21μm ASTM D7647 >80 25 20 39 Particles >38μm ASTM D7647 >20 0 0 0 Particles >38μm ASTM D7647 >20 0 0 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 24/22/16 24/21/15 24/21/15 FLUID DEGRADATION method limit/base current history1 history1			ASTM D7647	>2500	<u> </u>	1 9715	1 8110
Particles >38μm ASTM D7647 >20 0 0 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 24/22/16 24/21/15 24/21/15 FLUID DEGRADATION method limit/base current history1 history1	Particles >14µm		ASTM D7647	>320	A 372	225	299
Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 ▲ 24/22/16 ▲ 24/21/15 ▲ 24/21/15 FLUID DEGRADATION method limit/base current history1 history1	Particles >21µm		ASTM D7647	>80	25	20	39
Oil Cleanliness ISO 4406 (c) >20/18/15 24/22/16 24/21/15 24/21/15 FLUID DEGRADATION method limit/base current history1 history1	Particles >38µm		ASTM D7647	>20	0	0	0
Oil Cleanliness ISO 4406 (c) >20/18/15 24/22/16 24/21/15 24/21/15 FLUID DEGRADATION method limit/base current history1 history1	Particles >71µm		ASTM D7647	>4	0	0	0
· · · · · · · · · · · · · · · · · · ·	-		ISO 4406 (c)	>20/18/15	4/22/16	▲ 24/21/15	▲ 24/21/15
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Acid Number (AN) mg KOH/g ASIM D9/4 0.005 0.027 0.014 0.017	Acid Number (AN)	mg KOH/g	ASTM D974	0.005	0.027	0.014	0.017

Contact/Location: ANDREAS KALISPERIS - PHIPHIPEN



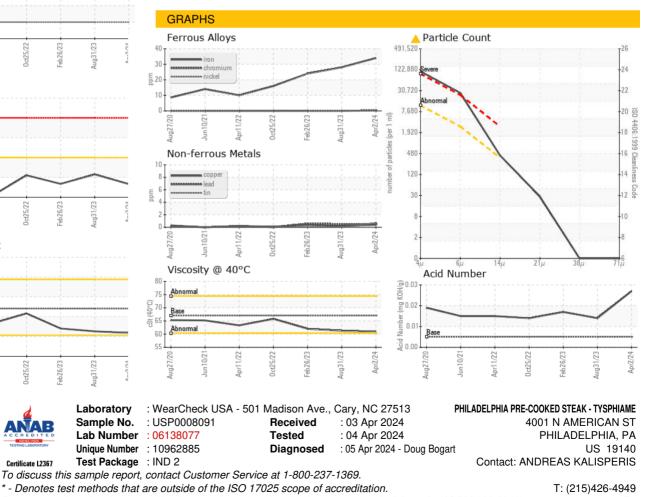
OIL ANALYSIS REPORT





VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	VLITE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.01	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	FIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	67	60.9	61.3	62.0
SAMPLE IMAGE	S	method	limit/base	current	history1	history2
Color						
Bottom						

Bottom



Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

E:2012) F:

Report Id: PHIPHIPEN [WUSCAR] 06138077 (Generated: 04/05/2024 09:44:19) Rev: 1

Contact/Location: ANDREAS KALISPERIS - PHIPHIPEN