

OIL ANALYSIS REPORT

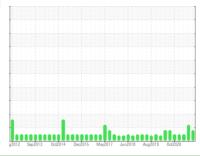
Sample Rating Trend

ISO



Refrigeration Compressor

USPI ALT-68 SC (--- GAL)





Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is a moderate amount of silt (particulates < 6 microns in size) 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 Number Client Info USP0004819 USP0001309 USP224410 Sample Date Client Info 10 Jan 2024 03 Oct 2023 30 Apr 2021 3			g2012 Sep20	13 Oct2014 Dec2015	May2017 Jun2018 Aug2019 (0eł2020	
Client Info	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info	Sample Number		Client Info		USP0004819	USP0001309	USP224410
Oil Age hrs Client Info N/A SP Particles > 4 A 0	Sample Date		Client Info		10 Jan 2024	03 Oct 2023	30 Apr 2021
Oil Changed Sample Status	Machine Age	hrs	Client Info		47885	46431	45945
Sample Status ATTENTION ATTENTION ATTENTION NORMAL WEAR METALS method limit/base current history2 Iron ppm ASTM D5185m >8 4 4 0 Chromium ppm ASTM D5185m >2 <1	Oil Age	hrs	Client Info		0	0	0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >8 4 4 0 Chromium ppm ASTM D5185m 0 0 0 Nickel ppm ASTM D5185m 0 0 0 Silver ppm ASTM D5185m 2 0 0 0 Alduminum ppm ASTM D5185m >2 0 0 0 Alduminum ppm ASTM D5185m >2 0 0 0 Lead ppm ASTM D5185m >2 0 0 0 Copper ppm ASTM D5185m >4 0 0 0 Tin ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadrium ppm ASTM D5185m 0 0 0 0 Barium	Oil Changed		Client Info		N/A	N/A	N/A
Chromium	Sample Status				ATTENTION	ATTENTION	NORMAL
Chromium ppm ASTM D5185m >2 <1 0 0 Nickel ppm ASTM D5185m 0 <1 0 Silver ppm ASTM D5185m 0 <1 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 0 0 Lead ppm ASTM D5185m >8 <1 0 0 Copper ppm ASTM D5185m >8 <1 0 0 Antimony ppm ASTM D5185m 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Bariu	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>8	4	4	0
Description	Chromium	ppm	ASTM D5185m	>2	<1	0	0
Silver	Nickel	ppm	ASTM D5185m		0	0	0
Aluminum ppm ASTM D5185m >3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Titanium	ppm	ASTM D5185m		0	<1	0
Lead ppm ASTM D5185m >2 0 0 0 Copper ppm ASTM D5185m >8 <1 0 0 Tin ppm ASTM D5185m >4 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 0	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m ≥8 <1 0 0 Tin ppm ASTM D5185m >4 0 0 0 Vanadium ppm ASTM D5185m •••• ••• 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 1 0 0 Barium ppm ASTM D5185m 0 1 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 Zinc ppm ASTM D5185m 0 0 0 0 Zinc ppm ASTM D5185m 0 0 0 0	Aluminum	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >8 <1 0 0 Tin ppm ASTM D5185m >4 0 0 0 Antimony ppm ASTM D5185m 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 0 1 0 Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 0 0 0 Manganesium ppm ASTM D5185m 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 0 Zinc ppm ASTM D5185m 0 0 0 0 <t< td=""><td>Lead</td><td></td><td>ASTM D5185m</td><td>>2</td><th>0</th><td>0</td><td>0</td></t<>	Lead		ASTM D5185m	>2	0	0	0
Tin ppm ASTM D5185m > 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Copper	ppm	ASTM D5185m	>8	<1	0	0
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 1 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 0 Zinc ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 34 0 CONTAMINA	Tin	ppm	ASTM D5185m	>4	0	0	0
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Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 1 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 50 0 34 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m > 15 <1 1 <1 0 Potassium ppm ASTM D5185m 0 <1 0 Vater % ASTM D5185m > 20 <1 0 0 Water % ASTM D5185m > 20 <1 0 0 Water % ASTM D5185m > 20 <1 0 0 Water % ASTM D5185m > 20 <1 0 0 Water % ASTM D5185m > 20 <1 0 0 Water % ASTM D5185m > 20 <1 0 0 Water % ASTM D5185m > 20 <1 0 0 Water % ASTM D5185m > 20 <1 0 0 Water % ASTM D5185m > 20 <1 0 0 Water % ASTM D6304 > 0.01 0.003 0.008 0.006 ppm Water ppm ASTM D6304 > 100 31 84.1 62.1 FLUID CLEANLINESS method limit/base current history1 history2 Particles > 4μm ASTM D7647 > 10000 Δ 10920 Δ 18656 2242 Particles > 14μm ASTM D7647 > 2500 2002 Δ 4548 391 Particles > 21μm ASTM D7647 > 320 46 167 25 Particles > 21μm ASTM D7647 > 20 0 1 0 Particles > 38μm ASTM D7647 > 20 0 1 0 Particles > 71μm ASTM D7647 > 4 0 0 0 Oil Cleanliness ISO 4406 (c) > 20/18/15 Δ 21/18/13 Δ 21/19/15 18/16/12	Cadmium		ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 1 0 Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 Calcium ppm ASTM D5185m 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 50 0 34 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1 1 <1 <1 Sodium ppm ASTM D5185m >20 <1 0 Sodium ppm ASTM D5185m <td>ADDITIVES</td> <td></td> <td>method</td> <td>limit/base</td> <th>current</th> <td>history1</td> <td>history2</td>	ADDITIVES		method	limit/base	current	history1	history2
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Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 Calcium ppm ASTM D5185m 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 50 0 34 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1 1 <1 <1 Sodium ppm ASTM D5185m >20 <1 0 0 Sodium ppm ASTM D5185m >20 <1 0 0 Potassium ppm ASTM D5185m >20 <1 0 0	Barium		ASTM D5185m		0	1	0
Manganese ppm ASTM D5185m 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 Calcium ppm ASTM D5185m 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 50 0 34 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <th< td=""><td>Molybdenum</td><td></td><td>ASTM D5185m</td><td></td><th>0</th><td>0</td><td>0</td></th<>	Molybdenum		ASTM D5185m		0	0	0
Magnesium ppm ASTM D5185m 0 0 0 Calcium ppm ASTM D5185m <1 <1 0 Phosphorus ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 50 0 34 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1 1 <1 <1 Sodium ppm ASTM D5185m >15 <1 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 </td <td>Manganese</td> <td></td> <td>ASTM D5185m</td> <td></td> <th>0</th> <td>0</td> <td>0</td>	Manganese		ASTM D5185m		0	0	0
Calcium ppm ASTM D5185m <1 <1 0 Phosphorus ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 50 0 0 0 Sulfur ppm ASTM D5185m 50 0 34 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1	-		ASTM D5185m		0	0	0
Phosphorus ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 50 0 34 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1 1 <1 Sodium ppm ASTM D5185m >15 <1 0 <1 0 Potassium ppm ASTM D5185m >20 <1 0 0 Water % ASTM D5185m >20 <1 0 0 Particles >4µm ASTM D6304 >0.01 31 84.1 62.1	Calcium		ASTM D5185m		<1	<1	0
Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 50 0 34 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1	Phosphorus		ASTM D5185m		0	0	0
Sulfur ppm ASTM D5185m 50 0 34 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1	Zinc		ASTM D5185m		0		0
Silicon ppm ASTM D5185m >15 <1 1 <1	Sulfur		ASTM D5185m	50		34	0
Sodium ppm ASTM D5185m 0 <1 0 Potassium ppm ASTM D5185m >20 <1	CONTAMINANTS		method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 0 <1 0 Potassium ppm ASTM D5185m >20 <1	Silicon	ppm	ASTM D5185m	>15	<1	1	<1
Water % ASTM D6304 > 0.01 0.003 0.008 0.006 ppm Water ppm Water ppm ASTM D6304 > 100 31 84.1 62.1 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 > 10000 10920 18656 2242 Particles >6μm ASTM D7647 > 2500 2002 4548 391 Particles >14μm ASTM D7647 > 320 46 167 25 Particles >21μm ASTM D7647 > 80 6 25 3 Particles >38μm ASTM D7647 > 20 0 1 0 Particles >71μm ASTM D7647 > 4 0 0 0 Oil Cleanliness ISO 4406 (c) > 20/18/15 21/18/13 21/19/15 18/16/12	Sodium	ppm	ASTM D5185m		0	<1	0
Water % ASTM D6304 > 0.01 0.003 0.008 0.006 opm Water ppm ASTM D6304 > 100 31 84.1 62.1 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 > 10000 ▲ 10920 ▲ 18656 2242 Particles >6μm ASTM D7647 > 2500 2002 ▲ 4548 391 Particles >14μm ASTM D7647 > 320 46 167 25 Particles >21μm ASTM D7647 > 80 6 25 3 Particles >38μm ASTM D7647 > 20 0 1 0 Particles >71μm ASTM D7647 > 4 0 0 0 Oil Cleanliness ISO 4406 (c) > 20/18/15 ▲ 21/18/13 ▲ 21/19/15 18/16/12	Potassium	ppm	ASTM D5185m	>20	<1	0	0
ppm Water ppm ASTM D6304 >100 31 84.1 62.1 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >10000 ▲ 10920 ▲ 18656 2242 Particles >6μm ASTM D7647 >2500 2002 ▲ 4548 391 Particles >14μm ASTM D7647 >320 46 167 25 Particles >21μm ASTM D7647 >80 6 25 3 Particles >38μm ASTM D7647 >20 0 1 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 ▲ 21/18/13 ▲ 21/19/15 18/16/12			ASTM D6304	>0.01	0.003	0.008	0.006
Particles >4μm ASTM D7647 >10000 ▲ 10920 ▲ 18656 2242 Particles >6μm ASTM D7647 >2500 2002 ▲ 4548 391 Particles >14μm ASTM D7647 >320 46 167 25 Particles >21μm ASTM D7647 >80 6 25 3 Particles >38μm ASTM D7647 >20 0 1 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 ▲ 21/18/13 ▲ 21/19/15 18/16/12	ppm Water	ppm			31	84.1	62.1
Particles >6μm ASTM D7647 >2500 2002 ▲ 4548 391 Particles >14μm ASTM D7647 >320 46 167 25 Particles >21μm ASTM D7647 >80 6 25 3 Particles >38μm ASTM D7647 >20 0 1 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 ▲ 21/18/13 ▲ 21/19/15 18/16/12	FLUID CLEANLINE	ESS	method	limit/base	current	history1	history2
Particles >14μm ASTM D7647 >320 46 167 25 Particles >21μm ASTM D7647 >80 6 25 3 Particles >38μm ASTM D7647 >20 0 1 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 21/18/13 21/19/15 18/16/12	Particles >4µm		ASTM D7647	>10000	▲ 10920	▲ 18656	2242
Particles >21μm ASTM D7647 >80 6 25 3 Particles >38μm ASTM D7647 >20 0 1 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 21/18/13 21/19/15 18/16/12	Particles >6µm		ASTM D7647	>2500	2002	4548	391
Particles >21μm ASTM D7647 >80 6 25 3 Particles >38μm ASTM D7647 >20 0 1 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 21/18/13 21/19/15 18/16/12	Particles >14µm		ASTM D7647	>320	46	167	25
Particles >38μm ASTM D7647 >20 0 1 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 ▲ 21/18/13 ▲ 21/19/15 18/16/12	Particles >21µm			>80	6	25	
Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/15 ▲ 21/18/13 ▲ 21/19/15 18/16/12							
Oil Cleanliness ISO 4406 (c) >20/18/15 \(\Delta 21/18/13 \) 21/19/15 18/16/12	Particles >71µm						
FLUID DEGRADATION method limit/base current history1 history2	Oil Cleanliness				2 1/18/13		18/16/12
	FLUID DEGRADAT	ΓΙΟΝ _	method_	limit/base	current	history1	history2



OIL ANALYSIS REPORT







Certificate L2367

Lab Number **Unique Number**

Test Package

: 06063606

: 10834988 : IND 2

Diagnosed

Diagnostician

: Doug Bogart

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

T: F:

Contact: SERVICE MANAGER