

OIL ANALYSIS REPORT

Acid Number (AN)

mg KOH/g ASTM D8045 0.05

Sample Rating Trend



Machine Id MS-2 - B STUFF

Component Pump Fluic **USPI VAC 100 (--- LTR)**

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

Fluid Condition

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

SAMPLE INFOR	MATION	method	Junž021 Dec2021	Jun2022 Dec2022 M	history1	history2
Sample Number		Client Info		USPM29378	USPM28405	USPM28516
Sample Date		Client Info		17 Aug 2023	23 May 2023	30 Mar 2023
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				NORMAL	NORMAL	NORMAL
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	3	3	1
Chromium	ppm	ASTM D5185m	>5	0	<1	0
Nickel	ppm	ASTM D5185m	>5	0	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>7	0	0	1
Lead	ppm	ASTM D5185m	>12	0	1	0
Copper	ppm	ASTM D5185m	>30	0	0	0
Tin	ppm	ASTM D5185m	>9	<1	<1	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	0	0	0
			0	0	0	
Molybdenum	ppm	ASTM D5185m	0	Ū	0	0
Manganese	ppm ppm	ASTM D5185m ASTM D5185m	U	0	0 <1	0 <1
Manganese			0	0 <1		<1 2
Manganese Magnesium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	0	<1	<1 2 2
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 1800	0 <1 6 1214	<1 <1 4 1212	<1 2 2 1121
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 1800 0	0 <1 6 1214 0	<1 <1 4 1212 0	<1 2 2 1121 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 1800	0 <1 6 1214	<1 <1 4 1212 0 0	<1 2 2 1121 0 0
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 1800 0	0 <1 6 1214 0 28	<1 <1 4 1212 0	<1 2 2 1121 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 1800 0 0	0 <1 6 1214 0 28 current 7	<1 <1 4 1212 0 0 0 <u>history1</u> 5	<1 2 2 1121 0 0 history2 4
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 1800 0 0 limit/base >60	0 <1 6 1214 0 28 <u>current</u> 7 1	<1 <1 4 1212 0 0 0 <u>history1</u> 5 2	<1 2 2 1121 0 0 history2 4 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 1800 0 0 limit/base >60	0 <1 6 1214 0 28 <u>Current</u> 7 1 0	<1 <1 4 1212 0 0 0 history1 5 2 2 2	<1 2 2 1121 0 0 0 history2 4 0 0 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 1800 0 0 limit/base >60	0 <1 6 1214 0 28 <u>current</u> 7 1 0 0.059	<1 <1 4 1212 0 0 0 history1 5 2 2 2 2 0.029	<1 2 2 1121 0 0 0 history2 4 0 0 0 0.034
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 1800 0 0 limit/base >60 >20	0 <1 6 1214 0 28 <u>current</u> 7 1 0 0.059 593.2	<1 <1 4 1212 0 0 0 history1 5 2 2 2 0.029 299.7	<1 2 1 2 1121 0 0 0 history2 4 0 0 0 0 0 0 343.3
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIS	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D6304 ASTM D6304	0 0 1800 0 0 Imit/base >60 >20 >20 >.1	0 <1 6 1214 0 28 <u>current</u> 7 1 0 0.059 593.2 <u>current</u>	<1 <1 4 1212 0 0 0 history1 5 2 2 2 0.029 299.7 history1	<1 2 2 1121 0 0 0 history2 4 0 0 0 0.034 343.3 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D6304 ASTM D6304 ASTM D6304 ASTM D7647	0 0 1800 0 0 limit/base >60 >20 >20 >.1 limit/base >5000	0 <1 6 1214 0 28 <u>current</u> 7 1 0 0.059 593.2 <u>current</u> 324	<1 <1 <1 <4 1212 0 0 0 history1 5 2 2 0.029 299.7 history1 125	<1 2 2 1121 0 0 0 history2 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIF Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D6304 ASTM D6304 ASTM D6304 ASTM D7647 ASTM D7647	0 0 1800 0 0 Iimit/base >60 >20 >20 >.1 Iimit/base >5000 >1300	0 <1 6 1214 0 28 <u>current</u> 7 1 0 0.059 593.2 <u>current</u> 324 102	<1 <1 <1 <1 <1 <1 <1 <12 <0 0 0	<1 2 1121 0 0 0 history2 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLII Particles >4µm Particles >6µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D6304 ASTM D6304 ASTM D6304 ASTM D7647 ASTM D7647 ASTM D7647	0 0 1800 0 0 imit/base >60 >20 >20 >.1 imit/base >5000 >1300 >160	0 <1 6 1214 0 28 <u>current</u> 7 1 0 0.059 593.2 <u>current</u> 324 102 21	<1 <1 <1 <4 1212 0 0 0 history1 5 2 2 0.029 299.7 history1 125 57 11	<1 2 1121 0 0 0 history2 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Sodium Potassium Vater ppm Water FLUID CLEANLIS Particles >4µm Particles >6µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D6304 ASTM D6304 ASTM D6304 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	0 0 1800 0 0 imit/base >60 >20 >20 >20 >1 0 >1 0 >1 0 >1 0 >1 0 >	0 <1 6 1214 0 28 Current 7 1 0 0.059 593.2 Current 324 102 21 6	<1 <1 <1 <4 1212 0 0 0 history1 5 2 2 0.029 299.7 history1 125 57 11 4	<1 2 1121 0 0 0 history2 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIS Particles >4µm Particles >6µm Particles >14µm Particles >21µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D6304 ASTM D6304 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	0 0 1800 0 0 limit/base >60 >60 >20 >20 >10 >10 >10 >10 >100 >100	0 <1 6 1214 0 28 <u>current</u> 7 1 0 0.059 593.2 <u>current</u> 324 102 21 6 0	<1 <1 <1 <4 1212 0 0 0	<1 2 1121 0 0 0 history2 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Solicon Sodium Potassium Water ppm Water FLUID CLEANLIS Particles >4µm Particles >6µm Particles >14µm Particles >38µm Particles >71µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5047 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	0 0 1800 0 0 Imit/base >60 >60 >20 >20 >10 >10 >100 >100 >10 >10 >3	0 <1 6 1214 0 28 current 7 1 0 0.059 593.2 current 324 102 21 6 0 0	<1 <1 4 1212 0 0 0 history1 5 2 2 2 0.029 299.7 history1 125 57 11 125 57 11 4 4 1 0	<1 2 1 2 1121 0 0 0 history2 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIS Particles >4µm Particles >4µm Particles >14µm Particles >21µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm % ppm NESS	ASTM D5185m ASTM D6304 ASTM D6304 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	0 0 1800 0 0 limit/base >60 >60 >20 >20 >10 >10 >10 >10 >100 >100	0 <1 6 1214 0 28 <u>current</u> 7 1 0 0.059 593.2 <u>current</u> 324 102 21 6 0	<1 <1 <1 <4 1212 0 0 0	<1 2 1121 0 0 0 history2 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

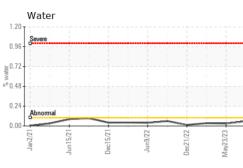
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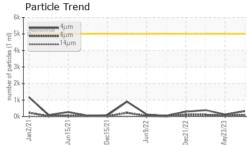
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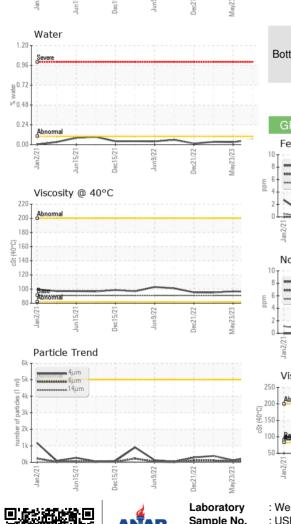
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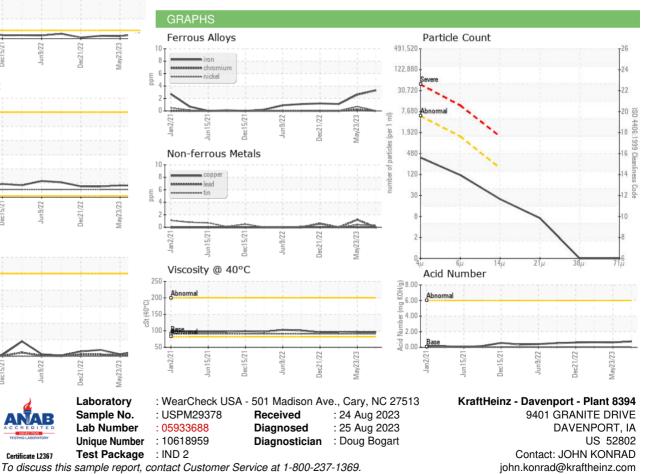








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* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

F: (563)326-8391

T:

Certificate L2367