

OIL ANALYSIS REPORT

SAMPLE INCODMATION



Machine Id CHW-010 Component Hydraulic System Fluid MOBIL DTE 10 EXCEL 32 (--- GAL)

DIAGNOSIS

A Recommendation

We recommend you service the filters on this component. We advise that you inspect for possible wear. Resample at the next service interval to monitor. We were unable to perform a particle count due to metal particles present in this sample.

📥 Wear

Moderate concentration of visible metal present. All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

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

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Sample Number		Client Info		WC0925982	WC0778731	MHI171761
Sample Date		Client Info		19 Mar 2024	29 Sep 2022	25 Apr 2017
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				ABNORMAL	NORMAL	NORMAL
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184			2	
Iron	ppm	ASTM D5185m	>50	11	5	4
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>20	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	0	0
Lead	ppm	ASTM D5185m	>20	<1	<1	6
Copper	ppm	ASTM D5185m	>20	<1	<1	<1
Tin	ppm	ASTM D5185m	>20	0	<1	0
Antimony	ppm	ASTM D5185m				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	<1
Barium	ppm	ASTM D5185m		0	0	<1
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m		0 0	0 0	<1 0
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		0 0 0	0 0 0	<1 0 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 0 0 <1	0 0 0 0	<1 0 <1 2
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	120	0 0 0 <1 102	0 0 0 98	<1 0 <1 2 96
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	120 475	0 0 <1 102 158	0 0 0 98 275	<1 0 <1 2 96 484
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	120 475	0 0 <1 102 158 9	0 0 0 98 275 4	<1 0 <1 2 96 484 116
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	120 475 1275	0 0 <1 102 158 9 643	0 0 0 98 275 4 1000	<1 0 <1 2 96 484 116 1227
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	120 475 1275 limit/base	0 0 <1 102 158 9 643 current	0 0 0 98 275 4 1000 history1	<1 0 <1 2 96 484 116 1227 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	120 475 1275 limit/base >+30	0 0 2 3 3 4 3 5 8 9 6 4 3 2 0	0 0 0 98 275 4 1000 history1 <1	<1 0 <1 2 96 484 116 1227 history2 6
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	120 475 1275 Iimit/base >+30	0 0 <1 102 158 9 643 current 0 <1	0 0 0 98 275 4 1000 history1 <1 3	<1 0 <1 2 96 484 116 1227 history2 6 3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	120 475 1275 limit/base >+30 >20	0 0 (0 <1 102 158 9 643 current 0 <1 <1	0 0 0 98 275 4 1000 history1 <1 3 0	<1 0 <1 2 96 484 116 1227 history2 6 3 1
Barium Molybdenum 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	120 475 1275 limit/base >+30 >20 >0.1	0 0 (0 <1 102 158 9 643 <u>current</u> 0 <1 <1 <1 0.004	0 0 0 98 275 4 1000 history1 <1 3 0 0 0.003	<1 0 <1 2 96 484 116 1227 history2 6 3 1 1 0.008
Barium Molybdenum 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 D6304 ASTM D6304	120 475 1275 limit/base >+30 >20 >0.1 >1000	0 0 (0 <1 102 158 9 643 <u>current</u> 0 <1 <1 <1 0.004 45.1	0 0 0 98 275 4 1000 history1 <1 3 0 0 0.003 39.6	<1 0 <1 2 96 484 116 1227 history2 6 3 1 0.008 80
Barium Molybdenum 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 D6304 ASTM D6304	120 475 1275 Iimit/base >+30 >20 >0.1 >1000 Iimit/base	0 0 () () () () () () () () () () () () ()	0 0 0 98 275 4 1000 history1 <1 3 0 0.003 39.6 history1	<1 0 <1 2 96 484 116 1227 history2 6 3 1 0.008 80 history2
Barium Molybdenum 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 D6304 ASTM D6304 ASTM D6304 ASTM D7647	120 475 1275 limit/base >+30 >20 >0.1 >1000 limit/base >5000	0 0 (1 102 158 9 643 <u>current</u> 0 <1 <1 (1 0.004 45.1 <u>current</u>	0 0 0 98 275 4 1000 history1 <1 3 0 0.003 39.6 history1 3401	<1 0 <1 2 96 484 116 1227 history2 6 3 1 0.008 80 history2 1270
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN 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	120 475 1275 Imit/base >+30 >20 >0.1 >1000 Imit/base >5000 >1300	0 0 (1 102 158 9 643 <u>current</u> 0 <1 <1 <1 0.004 45.1 <u>current</u> 	0 0 0 98 275 4 1000 history1 <1 3 0 0.003 39.6 history1 3401 480	<1 0 1 2 96 484 116 1227 history2 6 3 1 0.008 80 history2 1270 528</th
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D6304 ASTM D6304 ASTM D6304 ASTM D6304 ASTM D7647 ASTM D7647 ASTM D7647	120 475 1275 1275 1275 >+30 >20 >0.1 >1000 1imit/base >5000 >1300 >160	0 0 () () () () () () () () () () () () ()	0 0 0 98 275 4 1000 history1 <1 3 0 0.003 39.6 history1 3401 480 22	<1 0 1 2 96 484 116 1227 history2 6 3 1 0.008 80 history2 1270 528 94</th
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm % ppm	ASTM D5185m ASTM D6304 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	120 475 1275 1275 >+30 >+30 >20 >0.1 >1000 Iimit/base >5000 >1300 >1300 >160 >40	0 0 () () () () () () () () () () () () ()	0 0 0 98 275 4 1000 history1 <1 3 0 0.003 39.6 history1 3401 480 22 4	<1 0 1 2 96 484 116 1227 history2 6 3 1 0.008 80 history2 1270 528 94 32</th
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm 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	120 475 1275 Imit/base >+30 >20 >0.1 >1000 Imit/base >5000 >1300 >160 >40 >10	0 0 () () () () () () () () () () () () ()	0 0 0 98 275 4 1000 history1 <1 3 0 0.003 39.6 history1 3401 480 22 4 0	<1 0 1 2 96 484 116 1227 history2 6 3 1 0.008 80 history2 1270 528 94 32 3</th
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >4µm Particles >14µm Particles >38µm Particles >71µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm % ppm	ASTM D5185m ASTM D6304 ASTM D6304 ASTM D6304 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	120 475 1275 1275 1275 20 >0.1 >1000 1imit/base >5000 >1300 >160 >40 >10 >3	0 0 () () () () () () () () () () () () ()	0 0 0 98 275 4 1000 history1 <1 3 0 0.003 39.6 history1 3401 480 22 4 0 0 0	<1 0 <1 2 96 484 116 1227 history2 6 3 1 0.008 80 history2 1270 528 94 32 3 1



OIL ANALYSIS REPORT

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10000.	- devere					******	
8000-							
6000-							
4000.							
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	Feb 8/13	Jul7/14	May26/15	Jun13/16	Apr25/17	Sep29/22	Mar19/24
	PQ						
250-							





FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		0.14	0.128	0.306
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	A MODER	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	NONE
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	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	32	30.9	30.7	33.48
SAMPLE IMAGES	;	method	limit/base	current	history1	history2

Color



Bottom



Laboratory : WC0925982 Sample No. Received : 03 Apr 2024 14730 EDMOND RD NW Lab Number : 06137358 Tested : 10 Apr 2024 CALUMET, OK Unique Number : 10956823 Diagnosed : 10 Apr 2024 - Jonathan Hester US 73014 Test Package : IND 2 (Additional Tests: KF, PQ) Contact: ANGEL LAUZARA Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. a.lauzara@deutsche-windtechnik.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

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Contact/Location: ANGEL LAUZARA - MITCAL