

# **OIL ANALYSIS REPORT**

#### Area **1220 Birchmount** Machine Id **E4** Component **Hydraulic System** Filuid **AW HYDRAULIC OIL ISO 46 (--- LTR)**

## DIAGNOSIS

#### Recommendation

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. Resample at the next service interval to monitor. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) AW HYDRAULIC OIL ISO 46. Please confirm. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

## Wear

All component wear rates are normal.

## Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

#### **Fluid Condition**

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

Mar2024

Sample Rating Trend



NORMAL

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2	
Sample Number		Client Info		WC0921788			
Sample Date		Client Info		19 Mar 2024			
Machine Age	hrs	Client Info		0			
Oil Age	hrs	Client Info		0			
Oil Changed		Client Info		N/A			
Sample Status				NORMAL			
CONTAMINATION	N	method	limit/base	current	history1	history2	
Water		WC Method	>0.05	NEG			
WEAR METALS		method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185(m)	>20	5			
Chromium	ppm	ASTM D5185(m)	>20	<1			
Nickel	ppm	ASTM D5185(m)	>20	0			
Titanium	ppm	ASTM D5185(m)		0			
Silver	ppm	ASTM D5185(m)		0			
Aluminum	ppm	ASTM D5185(m)	>20	0			
Lead	ppm	ASTM D5185(m)	>20	0			
Copper	ppm	ASTM D5185(m)	>20	12			
Tin	ppm	ASTM D5185(m)	>20	0			
Antimony	ppm	ASTM D5185(m)		0			
Vanadium	ppm	ASTM D5185(m)		0			
Beryllium	ppm	ASTM D5185(m)		0			
Cadmium	ppm	ASTM D5185(m)		0			
				v			
ADDITIVES		method	limit/base	current	history1	history2	
ADDITIVES Boron	ppm		limit/base 5			history2	
		method		current	history1		
Boron	ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5	current 0 4 0	history1		
Boron Barium Molybdenum Manganese	ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5	current 0 4	history1 		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 25	Current 0 4 0 0 <1	history1  		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	method       ASTM D5185(m)	5 5 5 25 200	Current 0 4 0 0 <1 63	history1   		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 25 200 300	Current 0 4 0 0 <1 63 270	history1   		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 25 200 300 370	Current 0 4 0 0 <1 63 270 292	history1		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method       ASTM D5185(m)	5 5 5 25 200 300	Current 0 4 0 0 <1 63 270 292 2612	history1		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 25 200 300 370	Current 0 4 0 0 <1 63 270 292	history1		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method       ASTM D5185(m)	5 5 5 25 200 300 370	Current 0 4 0 0 <1 63 270 292 2612	history1	    	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method       ASTM D5185(m)	5 5 25 200 300 370 2500	Current 0 4 0 0 <1 63 270 292 2612 <1	history1		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method       ASTM D5185(m)	5 5 25 200 300 370 2500	Current 0 4 0 0 <1 63 270 292 2612 <1 <1	history1	      history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method       ASTM D5185(m)	5 5 25 200 300 370 2500	current       0       4       0       -       63       270       292       2612       <1       current	history1	      history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method       ASTM D5185(m)	5 5 5 25 200 300 370 2500 2500 <b>limit/base</b> >15	Current 0 4 0 0 <1 63 270 292 2612 <1 Current 0 0 0	history1	      history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method       ASTM D5185(m)	5 5 5 25 200 300 370 2500 2500 <b>limit/base</b> >15 >20	Current       0       4       0       -       63       270       292       2612       <1	history1	      history2  	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method       ASTM D5185(m)	5 5 5 25 200 300 370 2500 2500 <b>imit/base</b> >25 20	Current 0 4 0 0 <1 63 270 292 2612 <1 Current 0 0 <1 Current	history1	     history2  history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method       ASTM D5185(m)       ASTM D7647       ASTM D7647       ASTM D7647       ASTM D7647	5 5 5 200 300 370 2500 2500 2500 1imit/base >15 >20 1imit/base >5000 >1300 >160	current       0       4       0          63       270       292       2612       <1	history1	     history2  history2  history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method       ASTM D5185(m)       ASTM D7647       ASTM D7647       ASTM D7647       ASTM D7647       ASTM D7647       ASTM D7647	5 5 5 200 300 370 2500 2500 2500 1imit/base >15 >20 1imit/base >5000 >1300 >160	Current       0       4       0       -       63       270       292       2612       <1	history1                          history1           history1        history1	      history2  history2  history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method       ASTM D5185(m)       ASTM D7647       ASTM D7647       ASTM D7647       ASTM D7647	5 5 5 200 300 370 2500 2500 2500 1imit/base >15 >20 1imit/base >5000 >1300 >160	Current       0       4       0       -       63       270       292       2612       <1	history1  history1 <td>       history2  history2  history2</td>	       history2  history2  history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method       ASTM D5185(m)       ASTM D7647       ASTM D7647       ASTM D7647       ASTM D7647       ASTM D7647       ASTM D7647	5 5 5 25 200 300 370 2500 2500 <b>imit/base</b> >15 >20 <b>imit/base</b> >5000 >1300 >160 >40	Current       0       4       0       -       63       270       292       2612       <1	history1                       history1        history1        history1        history1 </td <td>       history2  history2  history2</td>	       history2  history2  history2	

Contact/Location: Joseph Kovacs - MARSCA



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Particle Trend			FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
= 5k - <sup>4μm</sup> 5k - <sup>4μm</sup>			Acid Number (AN)	mg KOH/g	ASTM D974*	0.57	0.42		
20 4k			VISUAL		method	limit/base	current	history1	history2
of			White Metal	scalar	Visual*	NONE	NONE		
ъ 2k -			Yellow Metal	scalar	Visual*	NONE	NONE		
			Precipitate	scalar	Visual*	NONE	NONE		
on i		9/24	Silt	scalar	Visual*	NONE	NONE		
Mar1 9/24		Mar19/2 <sup>4</sup>	Debris	scalar	Visual*	NONE	NONE		
Acid Number			Sand/Dirt	scalar	Visual*	NONE	NONE		
1.00 Abnormal			Appearance	scalar	Visual*	NORML	NORML		
(B0.80 KOH(			Odor Emulsified Water	scalar scalar	Visual* Visual*	NORML >0.05	NORML NEG		
DY 0.60 - Base			Free Water	scalar	Visual*	>0.05	NEG		
u.40			FLUID PROPERT		method	limit/base	current	history1	history2
Abnormal			Visc @ 40°C	cSt	ASTM D7279(m)	46	45.9		TIIStor yz
0.00		24	SAMPLE IMAGE		. ,	limit/base		biotonut	history?
Mar19/24		Mar1 9/24		5	method	iimii/base	current	history1	history2
Viscosity @ 40 <sup>4</sup>	2C		Color					no image	no image
48 48 48 48 48 48 48 48 48 48			Bottom					no image	no image
40 Abnormal			GRAPHS					· · · ·	
Mar19/24		+cros	Ferrous Alloys				Particle Count		
Mar		M.	10 iron 1			491,520	I		T <sup>26</sup>
Particle Trend			E 5-			122,880	Severe		-24
6k 4μm						30,720			-22
Ē <sup>5k</sup> - Παταστάδια 6μm			0			황 ( 7,680	Abnormal		-20 8
			Mar19/2.			Mar19/24 5 (per 1 ml			-18 4406:1
Hed 3k			≥ Non-ferrous Meta	c		Mar19/24 19/24 1000 1001 1000 1001 1000 1001 10000 10000 1000 1000 1000 1000 1000000	1		-20 130 4406:1999 Cleanliness -16 16 4201 -16 -116 -114 -114 -114 -114 -114 -114
			<sup>15</sup> T			E. 5 120			leanlin
0k			E <sup>10</sup> -			f			
Mar19/24		ACLD 1-	5-			≡ 30	1		-12 କ
Ma		- W	0			8			-10
			r19/24			Mar19/24	†		
			Minere site: @ 4000			≥ 0	4μ 6μ Acid Number	14µ 21µ	38µ 71µ
				Viscosity @ 40°C					
			⊋ <sup>50</sup> Base			4 4 4 4 0.00 0.00 0.00	Abnormal		
				501 Sevential 502 Sevential Sev					
			1			Unv Page	Abnormal		
			35 4			Ac. Ac.	9/24		9/24 -
			Mar1 9,24			Mar19/24	Mar19,24		Mar19,24
	Accredited Unique M Laboratory Test Pa To discuss this sample Test denoted (*) outsid	e No. umber Number ackage report, le scope	: WearCheck - C8-117 : WC0921788 : 02623416 : 5748535 : IND 2 ( Additional Test , contact Customer Serv e of accreditation, (m) m tation are based on the	Recei Teste Diagn sts: TAN I ice at 1-8 ethod mo	<b>ved</b> : 20 <b>d</b> : 21 <b>losed</b> : 21 Man ) 200-268-213 bdified, (e) te	) Mar 2024   Mar 2024   Mar 2024 - W 1.  sted at extern	es Davis nal lab.	T Contact: joseph@ T:	RODUCTS LTD CHMOUNT RD ORONTO, ON CA M1P 2C6 Joseph Kovacs Omarkdom.com (416)752-4290 (416)751-6638

Contact/Location: Joseph Kovacs - MARSCA