

OIL ANALYSIS REPORT

Sample Rating Trend





Hydraulic System Fluid AW HYDRAULIC OIL ISO 46 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

The amount and size of particulates present in the system are acceptable. 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.

		Uct	2021	Jan2023 Jan20	224	
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0883596	WC0736324	WC0477517
Sample Date		Client Info		17 Jan 2024	23 Jan 2023	07 Oct 2021
Machine Age	yrs	Client Info		0	0	0
Oil Age	yrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	۷	method	limit/base	current	history1	history2
Water		WC Method	>0.05	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>20	0	2	<1
Chromium	ppm	ASTM D5185m	>20	0	0	0
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	0	0	0
Lead	ppm	ASTM D5185m	>20	0	<1	3
Copper	ppm	ASTM D5185m	>20	3	3	2
Tin	ppm	ASTM D5185m	>20	<1	0	0
Antimony	ppm	ASTM D5185m				0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	maa	ASTM D5185m		0	0	0
	1-1-			v	0	
ADDITIVES	1-1-	method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 5	current 0	history1	history2 0
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 5 5	current 0 0	history1 0 1	history2 0 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 5 5 5 5	Current 0 0 0	history1 0 1 0	history2 0 0 0
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 5 5 5	Current 0 0 0 <1	0 1 0 <1 0 <1	history2 0 0 0 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 5 5 5 25	Current 0 0 0 <1 1	0 history1 0 1 0 <1 <1 <1	history2 0 0 0 <1 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 5 5 5 2 2 5 200	Current 0 0 0 <1 1 84	history1 0 1 0 <1 <1 92	history2 0 0 0 <1 <1 96
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 5 5 5 5 2 2 5 200 300	Current 0 0 0 <1 1 84 479	history1 0 1 0 <1 92 469	history2 0 0 0 <1 <1 <1 96 516
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 5 5 5 5 2 2 2 5 2 2 0 0 3 0 0 3 7 0	Current 0 0 0 <1 1 84 479 602	history1 0 1 0 <1 92 469 622	history2 0 0 0 <1 <1 96 516 652
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 5 5 5 25 200 300 370 2500	Current 0 0 0 <1 1 84 479 602 2386	history1 0 1 0 <1 92 469 622 2476	history2 0 0 0 - - 96 516 652 2570
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 5 5 5 2 2 2 0 0 3 0 0 3 7 0 2 5 0 0 2 5 0 0 2 5 0 0 2 5 0 0 2 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Current 0 0 0 <1 1 84 479 602 2386 Current	history1 0 1 0 <1 <1 <1 92 469 622 2476 history1	history2 0 0 0 -1 >1 96 516 652 2570 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	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	limit/base 5 5 5 25 200 300 370 2500 limit/base >15	Current 0 0 0 0 <1 1 84 479 602 2386 Current <1	history1 0 1 0 <1 <1 92 469 622 2476 history1 <1	history2 0 0 0 0 <1 <1 96 516 652 2570 history2 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base 5 5 5 25 200 300 370 2500 2500 limit/base >15	Current 0 0 0 <1 1 84 479 602 2386 Current <1 3	history1 0 1 0 <1 <1 92 469 622 2476 history1 <1 0	history2 0 0 0 -1 <1 96 516 652 2570 history2 2 3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 5 5 5 20 300 370 2500 limit/base >15 >20	Current 0 0 0 <1 1 84 479 602 2386 Current <1 3 0	history1 0 1 0 <1 92 469 622 2476 history1 <1 0 <11 0 <11 <1 <1 <1 <1 <1 <1 <1 <1 <1	history2 0 0 0 0 <1 96 516 652 2570 history2 2 3 3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	imit/base 5 5 5 25 200 300 370 2500 Imit/base >20 Imit/base	Current 0 0 0 (1 1 84 479 602 2386 Current <1 3 0 Current	history1 0 1 0 <1 92 469 622 2476 history1 <1 0 <1 0 <1 0 <1 0 <1 0 <1 <1 0 <1 history1	history2 0 0 0 -1 -1 96 516 652 2570 history2 2 3 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	imit/base 5 5 5 200 300 370 2500 Imit/base >250 Imit/base >250 Solution (State)	Current 0 0 0 <1 1 84 479 602 2386 Current <1 3 0 Current 837	history1 0 1 0 <1 92 469 622 2476 history1 <1 0 <11 0 <11 0 <1 0 <1 841	history2 0 0 0 01 02 03 3 history2 252
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	imit/base 5 5 5 20 300 370 2500 15 >20 imit/base >2500 >2500 >2500 >320	Current 0 0 0 <1 1 84 479 602 2386 Current <1 3 0 Current 837 210	history1 0 1 0 <1 92 469 622 2476 history1 <1 0 <1 0 <1 0 <1 841 220	history2 0 0 0 <1 96 516 652 2570 history2 2 3 history2 252 117
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	imit/base 5 5 5 200 300 370 2500 1bmit/base >15 >20 imit/base >2500 >320 >80	Current 0 0 0 <1 1 84 479 602 2386 Current <1 3 0 Current 837 210 17	history1 0 1 0 <1 92 469 622 2476 history1 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <20 30	history2 0 0 0 96 516 652 2570 history2 2 3 history2 252 117 17
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	imit/base 5 5 5 200 300 370 2500 2500 115 >20 imit/base >2500 >320 >320 >80 >20	Current 0 0 0 0 <1 1 84 479 602 2386 Current <1 3 0 Current 837 210 17 5	history1 0 1 0 <1 92 469 622 2476 history1 <1 0 <11 0 <122 2476 history1 <1 0 <1 0 <1 0 <1 30 14	history2 0 0 0 96 516 652 2570 history2 2 3 history2 252 117 17 3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	imit/base 5 5 25 200 300 370 2500 2500 15 >20 imit/base >2500 >320 >320 >80 >20 >4	Current 0 0 0 0 0 0 0 0 <1 84 479 602 2386 Current <1 3 0 Current 837 210 17 5 1	history1 0 1 0 <1 92 469 622 2476 history1 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 1 0 <1 1 0 <1 1	history2 0 0 0 0 <1 <16 516 652 2570 history2 2 3 history2 252 117 17 3 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >4µm Particles >14µm Particles >38µm Particles >38µm Particles >71µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	imit/base 5 5 25 200 300 370 2500 imit/base >15 >20 imit/base >2500 >320	Current 0 0 0 0 0 0 0 0 <1 84 479 602 2386 Current <1 3 0 Current 837 210 17 5 1 0	history1 0 1 0 <1 92 469 622 2476 history1 <1 0 <1 0 <1 0 <1 0 <1 0 <1 0 <1 14 4 0	history2 0 0 0 0 <1 <16 516 652 2570 history2 2 3 history2 252 117 17 3 0 0 0



OIL ANALYSIS REPORT

FLUID DEGRADATION method







Acid Number (AN)	mg KOH/g	ASTM D8045	0.57	0.52	0.45	0.465
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	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	>0.05	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERTI	ES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	46	48.4	48.1	48.2
SAMPLE IMAGES		method	limit/base	current	history1	history2

Color

Bottom





7090 EDINBORO RD ERIE, PA US 16509 Contact: JOE SANDERS joe.sanders@caplugs.com T: (814)868-3671 x:5131 F: (814)868-9875

28/



Test Package : IND 2 Certificate L2367 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)

Diagnostician : Don Baldridge

: 10835693

Unique Number

Contact/Location: JOE SANDERS - NIAERI

Jan23/23

OSI

4406

-20

18 1999 Cle

16

14

12 8

7/24 le