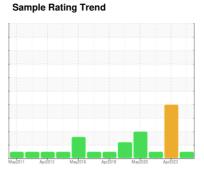


OIL ANALYSIS REPORT

Area [IVY CITY] C.C. 3547

Component Hydraulic System

ESSO UNIVIS N 32 (55 GAL)





Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

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

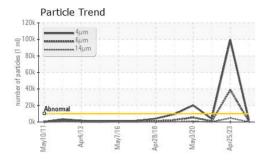
Fluid Condition

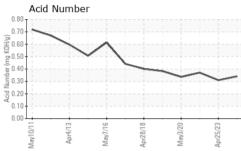
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

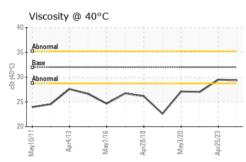
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0798838	WC0667706	WC0560155
Sample Date		Client Info		20 Apr 2024	25 Apr 2023	01 May 2021
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	ABNORMAL	NORMAL
CONTAMINATIO	Ν	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>20	0	3	2
Chromium	ppm	ASTM D5185m	>10	<1	2	3
Nickel	ppm	ASTM D5185m	>10	15	15	19
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		0	0	<1
Aluminum	ppm	ASTM D5185m		0	0	<1
Lead	ppm	ASTM D5185m	>10	6	8	10
Copper	ppm	ASTM D5185m		2	4	6
Tin	ppm	ASTM D5185m	>10	0	<1	<1
Antimony	ppm	ASTM D5185m				0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	nnm	ASTM D5185m				
Cadimani	ppm	ASTIVI DOTOSIII		0	0	0
ADDITIVES	ррш	method	limit/base	current	history1	history2
	ррт		limit/base			
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m		current 0	history1	history2
ADDITIVES Boron Barium	ppm	method ASTM D5185m ASTM D5185m	.1	current 0 0	history1 0 0	history2 2 0
ADDITIVES Boron Barium Molybdenum	ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	.1	current 0 0 0	history1 0 0 0	history2 2 0 0
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	.1	current 0 0 0 0	history1 0 0 0 0	history2 2 0 0 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	.3	current 0 0 0 0 0	history1 0 0 0 0 1	history2 2 0 0 0 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	method ASTM D5185m	.1 .3 .0 74	Current 0 0 0 0 0 0 49	history1 0 0 0 0 1 61 378 513	history2 2 0 0 <1 0 54 317 415
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m	.1 .3 0 74 266	Current 0 0 0 0 0 49 324	history1 0 0 0 0 1 61 378	history2 2 0 0 0 <1 0 54 317
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	.1 .3 0 74 266	Current 0 0 0 0 0 49 324 429	history1 0 0 0 0 1 61 378 513	history2 2 0 0 <1 0 54 317 415
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	.1 .3 0 74 266 338	Current 0 0 0 0 0 49 324 429 2617	history1 0 0 0 0 1 61 378 513 2863	history2 2 0 0 <1 0 54 317 415 2377
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	.1 .3 0 74 266 338	Current 0 0 0 0 0 49 324 429 2617 current	history1 0 0 0 1 61 378 513 2863 history1 2 0	history2 2 0 0 54 317 415 2377 history2 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	.1 .3 0 74 266 338	Current 0 0 0 0 0 49 324 429 2617 Current 0	history1 0 0 0 0 1 61 378 513 2863 history1 2	history2 2 0 0 <1 0 54 317 415 2377 history2 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	.1 .3 .0 .74 .266 .338	current 0 0 0 0 0 0 49 324 429 2617 current 0 <1	history1 0 0 0 1 61 378 513 2863 history1 2 0	history2 2 0 0 <1 0 54 317 415 2377 history2 <1 2
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	.1 .3 .0 .74 .266 .338 limit/base >20 >20	current 0 0 0 0 0 49 324 429 2617 current 0 <1	history1 0 0 0 1 61 378 513 2863 history1 2 0 <1	history2 2 0 0 <1 0 54 317 415 2377 history2 <1 2 0
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	.1 .3 .0 .74 .266 .338 limit/base >20 >20 limit/base	current 0 0 0 0 0 49 324 429 2617 current 0 <1 0	history1 0 0 0 1 61 378 513 2863 history1 2 0 <1 history1 4 99409 39022	history2 2 0 0 <1 0 54 317 415 2377 history2 <1 2 0 history2
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 method ASTM D5185m ASTM D7647 ASTM D7647	.1 .3 .0 .74 .266 .338 limit/base >20 >20 limit/base >10000 >1300 >160	current 0 0 0 0 0 49 324 429 2617 current 0 <1 0 current 2264 615 52	history1 0 0 0 1 61 378 513 2863 history1 2 0 <1 history1 99409 39022 4718	history2 2 0 0 54 317 415 2377 history2 <1 2 0 history2 3753
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 method ASTM D5185m	.1 .3 .74 .266 .338	current 0 0 0 0 0 49 324 429 2617 current 0 <1 0 current 2264 615 52 16	history1 0 0 0 1 61 378 513 2863 history1 2 0 <1 history1 99409 39022 4718 1410	history2 2 0 0 0 <1 0 54 317 415 2377 history2 <1 2 0 history2 3753 842 53 12
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 method ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	.1 .3 .74 .266 .338	current 0 0 0 0 0 49 324 429 2617 current 0 <1 0 current 2264 615 52 16 1	history1 0 0 0 1 61 378 513 2863 history1 2 0 <1 history1 △ 99409 △ 39022 △ 4718 △ 1410 △ 148	history2 2 0 0 54 317 415 2377 history2 <1 2 0 history2 3753 842 53 12 0
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 method ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647	.1 .3 .74 .266 .338	current 0 0 0 0 0 49 324 429 2617 current 0 <1 0 current 2264 615 52 16	history1 0 0 0 1 61 378 513 2863 history1 2 0 <1 history1 99409 39022 4718 1410	history2 2 0 0 54 317 415 2377 history2 <1 2 0 history2 3753 842 53 12

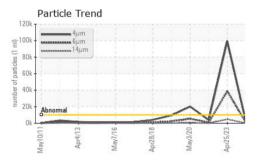


OIL ANALYSIS REPORT



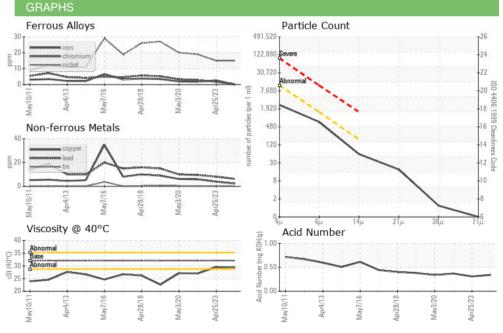






FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		0.34	0.31	0.371
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	▲ HEAVY	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	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	29.3	29.5	27.0
SAMPLE IMAGES	3	method	limit/base	current	history1	history2

Color		
Bottom		







Certificate 12367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Lab Number : 06159025 Unique Number : 10994448 Test Package : MOB 2

: WC0798838

Received **Tested** Diagnosed

: 24 Apr 2024 : 25 Apr 2024 : 25 Apr 2024 - Don Baldridge

1401 W STREET NE, HIGH SPEED RAIL 2ND FLOOR WASHINGTON, DC

US 20018 Contact: MICHAEL PORTER michael.porter@amtrak.com

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: (202)870-1399

AMTRAK