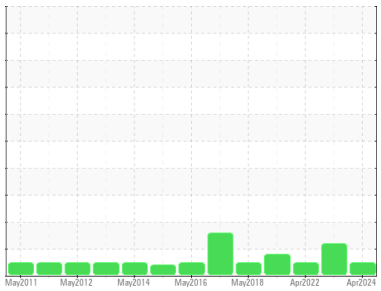
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
ALSTOM 3407
Component
Hydraulic System
Fluid
ESSO UNIVIS N 32 (55 GAL)

DIAGNOSIS

Recommendation
Resample at the next service interval to monitor.

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.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0909923**	WC0673365	WC0643749
Sample Date		Client Info		**17 Apr 2024**	29 Apr 2023	29 Apr 2022
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

CONTAMINATION		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**	1	<1
Chromium	ppm	ASTM D5185m	>10	**0**	1	1
Nickel	ppm	ASTM D5185m	>10	**5**	31	32
Titanium	ppm	ASTM D5185m		**0**	0	0
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>10	**0**	1	<1
Lead	ppm	ASTM D5185m	>10	**4**	7	8
Copper	ppm	ASTM D5185m	>75	**3**	2	4
Tin	ppm	ASTM D5185m	>10	**0**	<1	<1
Antimony	ppm	ASTM D5185m		**---**	---	---
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

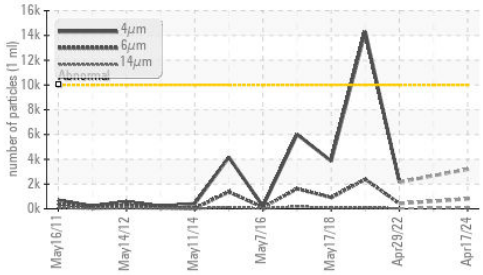
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	.1	**0**	0	<1
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m	.3	**0**	<1	0
Manganese	ppm	ASTM D5185m		**<1**	<1	0
Magnesium	ppm	ASTM D5185m	0	**<1**	0	0
Calcium	ppm	ASTM D5185m	74	**50**	48	48
Phosphorus	ppm	ASTM D5185m	266	**348**	338	331
Zinc	ppm	ASTM D5185m	338	**437**	458	406
Sulfur	ppm	ASTM D5185m		**4309**	3830	2567

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	**<1**	1	0
Sodium	ppm	ASTM D5185m		**2**	2	<1
Potassium	ppm	ASTM D5185m	>20	**1**	<1	0

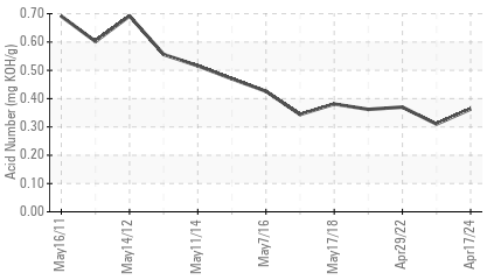
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>10000	**3195**	---	2158
Particles >6µm		ASTM D7647	>1300	**807**	---	418
Particles >14µm		ASTM D7647	>160	**103**	---	32
Particles >21µm		ASTM D7647	>40	**40**	---	11
Particles >38µm		ASTM D7647	>10	**4**	---	0
Particles >71µm		ASTM D7647	>3	**0**	---	0
Oil Cleanliness		ISO 4406 (c)	>20/17/14	**19/17/14**	---	18/16/12

OIL ANALYSIS REPORT

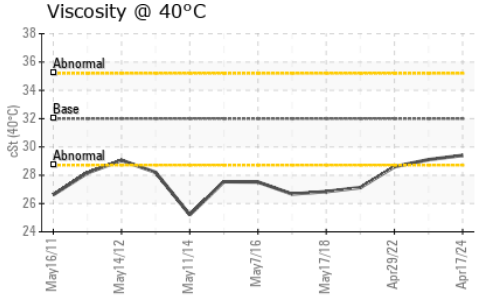
Particle Trend



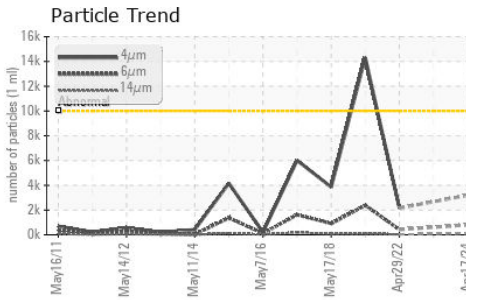
Acid Number



Viscosity @ 40°C



Particle Trend

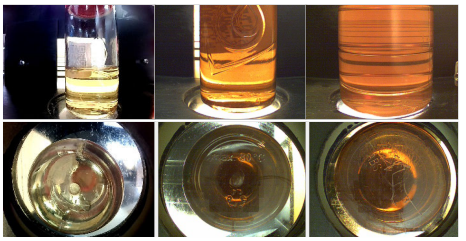


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.363**	0.31	0.37

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

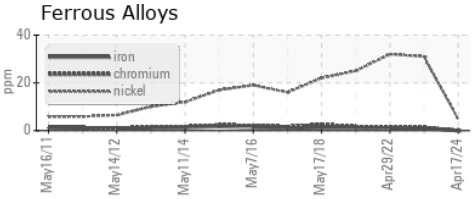
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	32	**29.4**	29.1	28.6

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

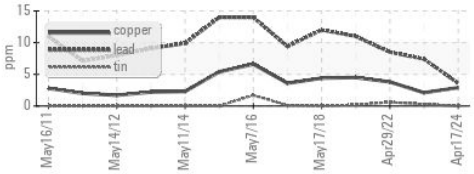


GRAPHS

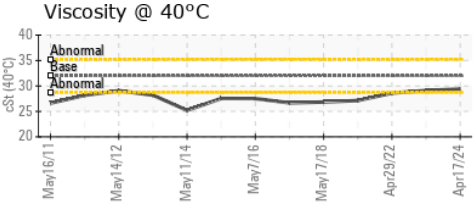
Ferrous Alloys



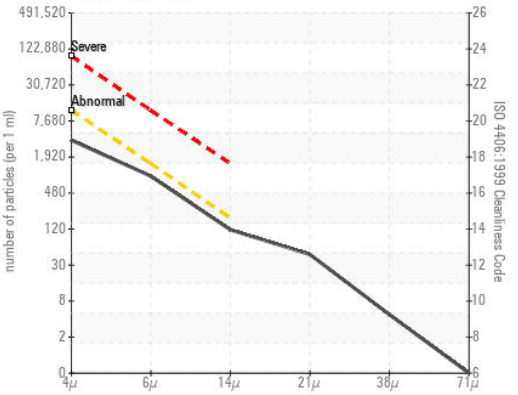
Non-ferrous Metals



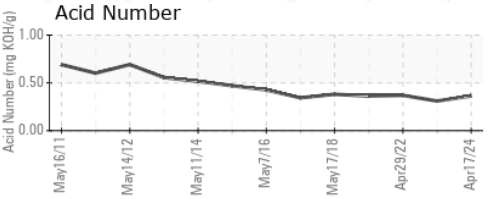
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0909923
Lab Number : 06153056
Unique Number : 10983134
Test Package : MOB 2

Received : 18 Apr 2024
Tested : 19 Apr 2024
Diagnosed : 19 Apr 2024 - Wes Davis

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)

AMTRAK
1401 W STREET NE, HIGH SPEED RAIL 2ND FLOOR
WASHINGTON, DC
US 20018
Contact: MICHAEL PORTER
michael.porter@amtrak.com
T: (202)870-1399
F: