

Machine Id
3720106
Component
Diesel Engine
Fluid
SHELL ROTELLA T4 10W30 (--- GAL)

RECOMMENDATION

Check for low coolant level. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		PC0083999	PC0074755	PC0066869
Sample Date		Client Info		10 May 2024	18 Sep 2023	20 Dec 2022
Machine Age	mls	Client Info		386474	332458	275147
Oil Age	mls	Client Info		54000	57000	55000
Filter Age	mls	Client Info		54000	57000	55000
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

Chromium ppm levels are abnormal. Ring wear is indicated.

Iron	ppm	ASTM D5185(m)	>200	82	51	40
Chromium	ppm	ASTM D5185(m)	>6	▲ 6	3	3
Nickel	ppm	ASTM D5185(m)	>3	<1	<1	<1
Titanium	ppm	ASTM D5185(m)	>2	<1	0	<1
Silver	ppm	ASTM D5185(m)	>2	0	<1	<1
Aluminum	ppm	ASTM D5185(m)	>50	27	22	17
Lead	ppm	ASTM D5185(m)	>10	0	<1	<1
Copper	ppm	ASTM D5185(m)	>50	11	11	14
Tin	ppm	ASTM D5185(m)	>6	<1	<1	1
Vanadium	ppm	ASTM D5185(m)		0	0	0
White Metal	scalar	Visual*	NONE	NONE	NONE	---
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	---

CONTAMINATION

Water treatment chemicals present, indicating slow coolant leak. Test for glycol is negative.

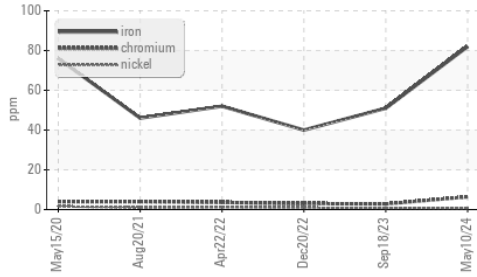
Silicon	ppm	ASTM D5185(m)	>50	8	9	8
Potassium	ppm	ASTM D5185(m)	>20	▲ 1234	6	7
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	ASTM D7922*		0.0	0.0	0.0
Soot %	%	ASTM D7844*	>3	0.8	1.2	0.4
Nitration	Abs/cm	ASTM D7624*	>20	12.1	11.9	5.8
Sulfation	Abs/.1mm	ASTM D7415*	>30	29.1	27.3	17.5
Silt	scalar	Visual*	NONE	NONE	NONE	---
Debris	scalar	Visual*	NONE	NONE	NONE	---
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	---
Appearance	scalar	Visual*	NORML	NORML	NORML	---
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG

FLUID CONDITION

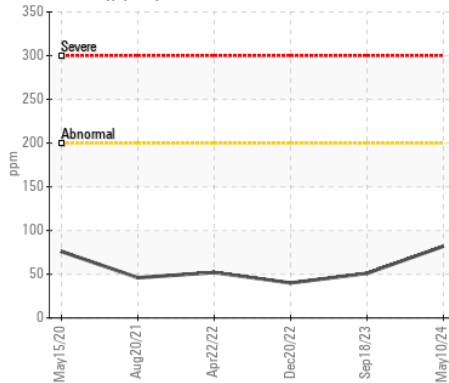
The oil is no longer serviceable as a result of the abnormal and/or severe wear. The condition of the oil is acceptable for the time in service (see recommendation).

Sodium	ppm	ASTM D5185(m)		● 179	4	4
Boron	ppm	ASTM D5185(m)		9	12	2
Barium	ppm	ASTM D5185(m)		0	0	0
Molybdenum	ppm	ASTM D5185(m)		105	60	62
Manganese	ppm	ASTM D5185(m)		2	<1	<1
Magnesium	ppm	ASTM D5185(m)		166	571	999
Calcium	ppm	ASTM D5185(m)		2194	1709	1268
Phosphorus	ppm	ASTM D5185(m)		831	1014	1125
Zinc	ppm	ASTM D5185(m)		1056	1256	1306
Sulfur	ppm	ASTM D5185(m)		2751	2380	2136
Oxidation	Abs/.1mm	ASTM D7414*	>25	20.4	23.0	9.9
Visc @ 40°C	cSt	ASTM D7279(m)	81.8	92.0	97.5	108
Visc @ 100°C	cSt	ASTM D7279(m)	12.1	12.8	13.5	14.4
Viscosity Index (VI)	Scale	ASTM D2270*	141	136	138	136

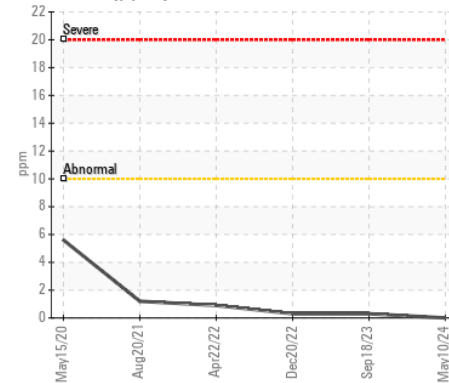
▲ Ferrous Alloys



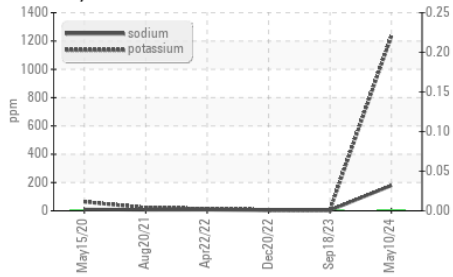
Iron (ppm)



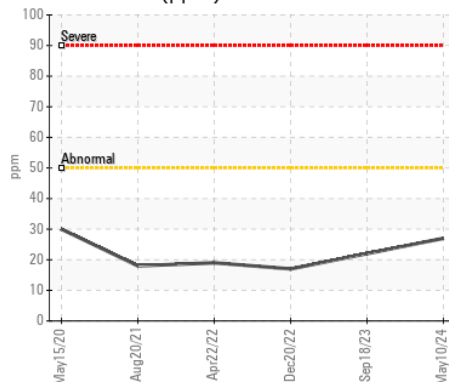
Lead (ppm)



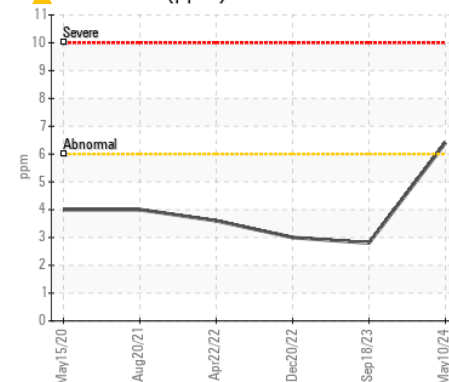
Glycol Contamination



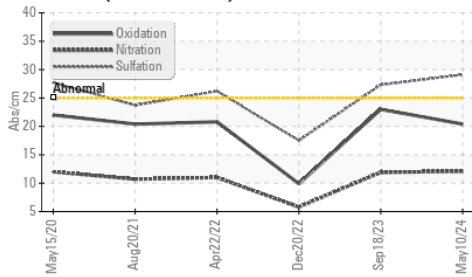
Aluminum (ppm)



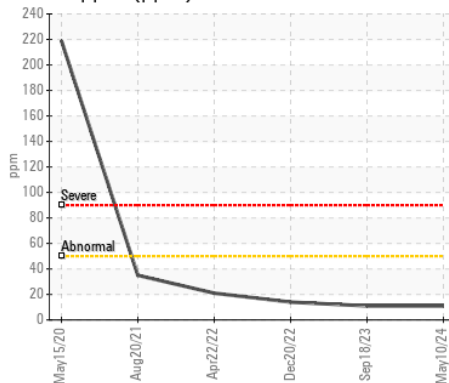
▲ Chromium (ppm)



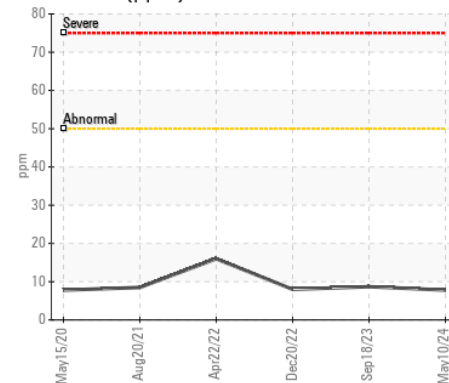
FT-IR (Direct Trend)



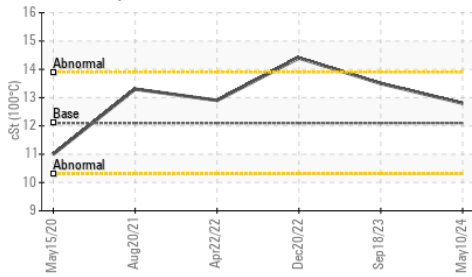
Copper (ppm)



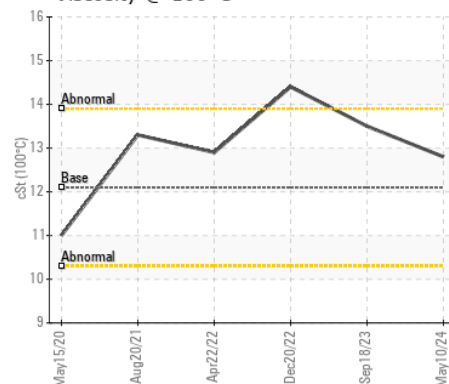
Silicon (ppm)



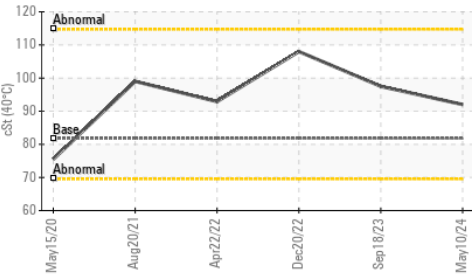
Viscosity @ 100°C



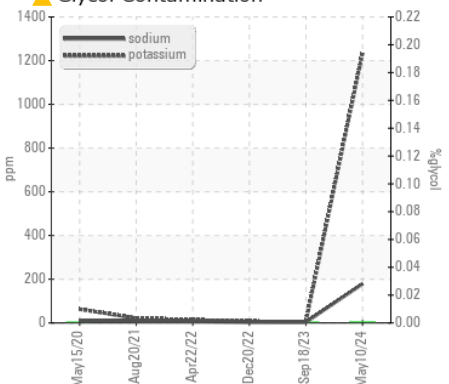
Viscosity @ 100°C



Viscosity @ 40°C



▲ Glycol Contamination



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
 Sample No. : PC0083999 Received : 03 Jun 2024
 Lab Number : 02639337 Tested : 04 Jun 2024
 Unique Number : 5788499 Diagnosed : 04 Jun 2024 - Kevin Marson
 Test Package : MOB 1 (Additional Tests: Glycol, KV40, VI, Visual)

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To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.