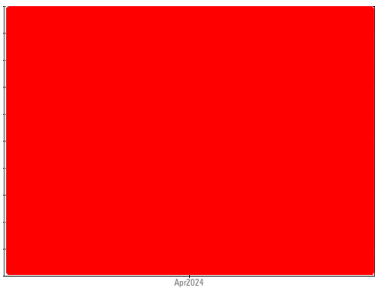
KIMBRO FLUID SOLUTIONS

OIL ANALYSIS REPORT

Sample Rating Trend



WATER

Machine Id
INT ROLLOFF INT ROLLOFF
Component
Diesel Engine
Fluid
PETRO CANADA DURON-E 15W40 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check for the source of the coolant leak. Recommend drain oil if not already done and flush with cleaner before refilling with oil. We recommend an early resample to monitor this condition. Please note that the oil was too thick and contaminated to perform some of the normal laboratory tests.

Wear
Cylinder, crank, or cam shaft wear is indicated.

Contamination
Sodium and/or potassium levels are high. There is a high concentration of glycol present in the oil. There is a high concentration of water present in the oil.

Fluid Condition
The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**KFS0003922**	---	---
Sample Date		Client Info		**22 Apr 2024**	---	---
Machine Age	hrs	Client Info		**0**	---	---
Oil Age	hrs	Client Info		**0**	---	---
Oil Changed		Client Info		**N/A**	---	---
Sample Status				**SEVERE**	---	---

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	▲ **105**	---	---
Chromium	ppm	ASTM D5185m	>20	**1**	---	---
Nickel	ppm	ASTM D5185m	>4	**0**	---	---
Titanium	ppm	ASTM D5185m		**<1**	---	---
Silver	ppm	ASTM D5185m	>3	**0**	---	---
Aluminum	ppm	ASTM D5185m	>20	**12**	---	---
Lead	ppm	ASTM D5185m	>40	**<1**	---	---
Copper	ppm	ASTM D5185m	>330	**22**	---	---
Tin	ppm	ASTM D5185m	>15	**4**	---	---
Vanadium	ppm	ASTM D5185m		**0**	---	---
Cadmium	ppm	ASTM D5185m		**0**	---	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	1	**180**	---	---
Barium	ppm	ASTM D5185m	1	**1**	---	---
Molybdenum	ppm	ASTM D5185m	60	**251**	---	---
Manganese	ppm	ASTM D5185m	1	**2**	---	---
Magnesium	ppm	ASTM D5185m	1010	**750**	---	---
Calcium	ppm	ASTM D5185m	1070	**1411**	---	---
Phosphorus	ppm	ASTM D5185m	1150	**1136**	---	---
Zinc	ppm	ASTM D5185m	1270	**1366**	---	---
Sulfur	ppm	ASTM D5185m	2060	**3467**	---	---

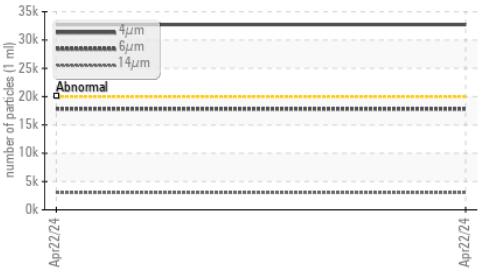
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**15**	---	---
Sodium	ppm	ASTM D5185m		● **2707**	---	---
Potassium	ppm	ASTM D5185m	>20	▲ **3513**	---	---
Fuel	%	ASTM D3524	>2.0	**2.1**	---	---
Water	%	ASTM D6304	>0.2	▲ **1.00**	---	---
ppm Water	ppm	ASTM D6304	>2000	▲ **10000**	---	---
Glycol	%	*ASTM D2982		**NEG**	---	---

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	● **32728**	---	---
Particles >6µm		ASTM D7647	>5000	▲ **17829**	---	---
Particles >14µm		ASTM D7647	>640	▲ **3034**	---	---
Particles >21µm		ASTM D7647	>160	▲ **1022**	---	---
Particles >38µm		ASTM D7647	>40	▲ **158**	---	---
Particles >71µm		ASTM D7647	>10	● **16**	---	---
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **22/21/19**	---	---

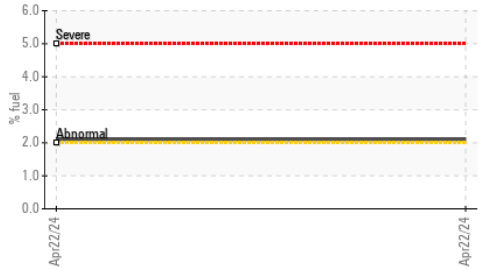
OIL ANALYSIS REPORT

Water (KF)

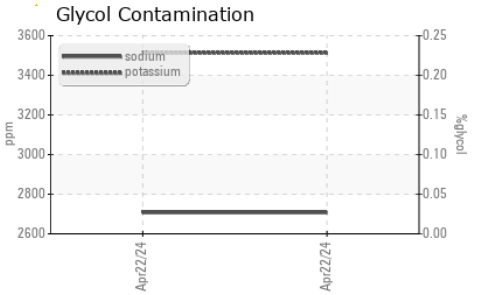
Particle Trend



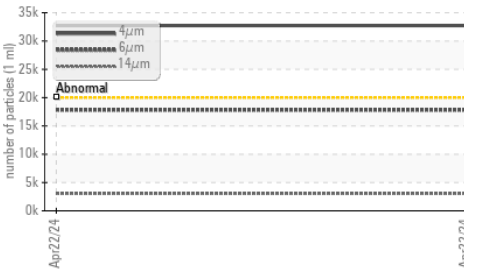
Fuel Dilution



Glycol Contamination



Particle Trend



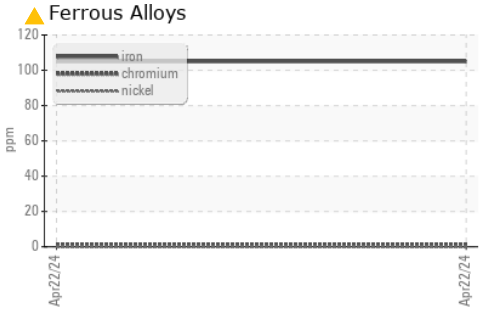
FLUID DEGRADATION		method	limit/base	current	history1	history2
Base Number (BN)	mg KOH/g	ASTM D2896	8.3	▲ **0.0**	---	---

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	---	---
Yellow Metal	scalar	*Visual	NONE	**NONE**	---	---
Precipitate	scalar	*Visual	NONE	**NONE**	---	---
Silt	scalar	*Visual	NONE	**NONE**	---	---
Debris	scalar	*Visual	NONE	**NONE**	---	---
Sand/Dirt	scalar	*Visual	NONE	**NONE**	---	---
Appearance	scalar	*Visual	NORML	● **THICK**	---	---
Odor	scalar	*Visual	NORML	**NORML**	---	---
Emulsified Water	scalar	*Visual	>0.2	▲ **1.0%**	---	---
Free Water	scalar	*Visual		**NEG**	---	---

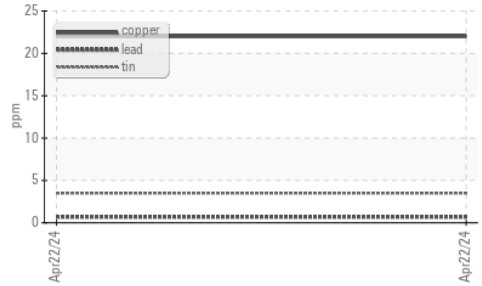
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.6	▲ **8.6**	---	---

GRAPHS

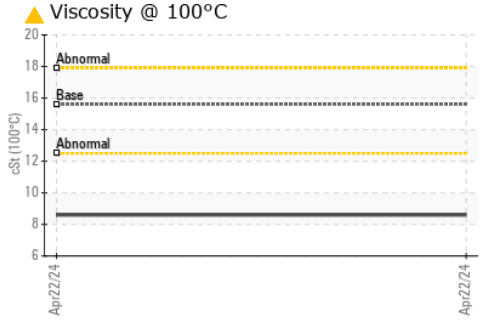
Ferrous Alloys



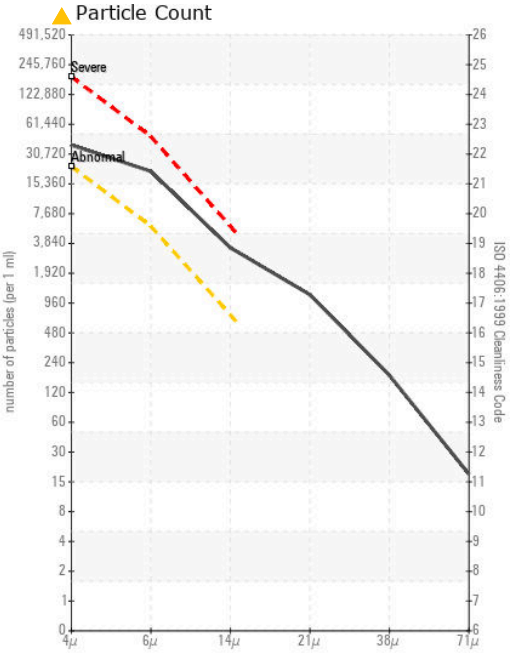
Non-ferrous Metals



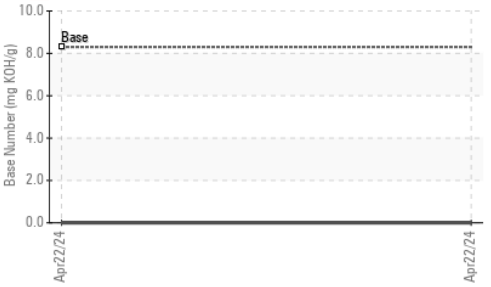
Viscosity @ 100°C



Particle Count



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KFS0003922 **Received** : 23 Apr 2024
Lab Number : 06157849 **Tested** : 07 May 2024
Unique Number : 10993272 **Diagnosed** : 07 May 2024 - Doug Bogart
Test Package : MOB 2 (Additional Tests: FuelDilution, Glycol, KF, PercentFuel, PrtCount)

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)

CONSTELLIUM
4805 SECOND STREET
MUSCLE SHOALS, AL
US 35661
Contact: Randy Nichols
randall.nichols@constellium.com
T: (256)386-6956
F:

Report Id: CONMUSAL [WUSCAR] 06157849 (Generated: 05/07/2024 10:43:51) Rev: 1

Contact/Location: CONSTELLIUM - Randy Nichols - CONMUSAL