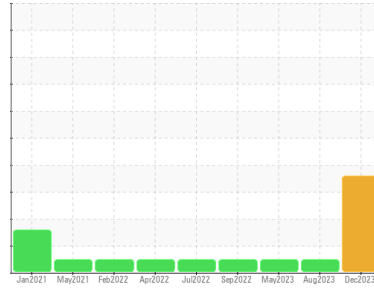




OIL ANALYSIS REPORT

Sample Rating Trend



Area
19DR
 Machine Id
810010
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation
 We advise that you check for the source of the coolant leak. Check for low coolant level. We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend an early resample to monitor this condition.

Wear
 All component wear rates are normal.

Contamination
 Sodium and/or potassium levels are high. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Fluid Condition
 The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	GFL0098792	GFL0092508	GFL0070490
Sample Date	Client Info	15 Dec 2023	17 Aug 2023	09 May 2023
Machine Age	hrs	6040	0	6040
Oil Age	hrs	6040	212	6040
Oil Changed	Client Info	N/A	Not Changd	N/A
Sample Status		ABNORMAL	NORMAL	NORMAL

CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >3.0	<1.0	<1.0	<1.0
Water	WC Method >0.2	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >75	28	21	10
Chromium	ppm ASTM D5185m >5	<1	1	<1
Nickel	ppm ASTM D5185m >4	0	0	<1
Titanium	ppm ASTM D5185m >2	0	<1	0
Silver	ppm ASTM D5185m >2	0	<1	0
Aluminum	ppm ASTM D5185m >15	5	3	2
Lead	ppm ASTM D5185m >25	0	<1	<1
Copper	ppm ASTM D5185m >100	8	2	1
Tin	ppm ASTM D5185m >4	0	<1	0
Vanadium	ppm ASTM D5185m	0	<1	0
Cadmium	ppm ASTM D5185m	0	0	0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	56	1	2
Barium	ppm ASTM D5185m 0	0	0	2
Molybdenum	ppm ASTM D5185m 60	98	65	65
Manganese	ppm ASTM D5185m 0	1	<1	<1
Magnesium	ppm ASTM D5185m 1010	898	1036	965
Calcium	ppm ASTM D5185m 1070	1034	1236	1161
Phosphorus	ppm ASTM D5185m 1150	997	1080	1067
Zinc	ppm ASTM D5185m 1270	1164	1348	1264
Sulfur	ppm ASTM D5185m 2060	2558	3552	2857

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	27	5	4
Sodium	ppm ASTM D5185m	1110	12	2
Potassium	ppm ASTM D5185m >20	6	1	<1
Glycol	% *ASTM D2982	NEG	NEG	NEG

INFRA-RED

method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >6	0.8	0.6	0.4
Nitration	Abs/cm *ASTM D7624 >20	16.3	10.8	8.7
Sulfation	Abs/.1mm *ASTM D7415 >30	24.4	22.6	20.8

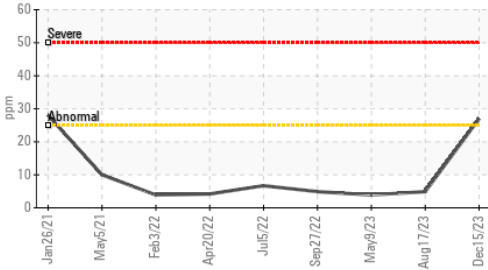
FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	19.4	19.7	18.0
Base Number (BN)	mg KOH/g ASTM D2896 9.8	10.7	6.9	8.3

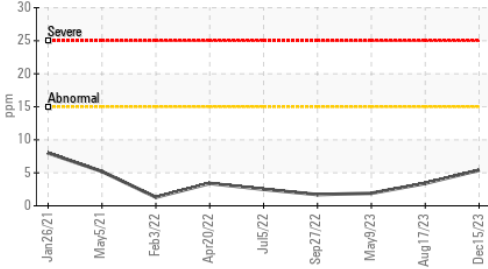


OIL ANALYSIS REPORT

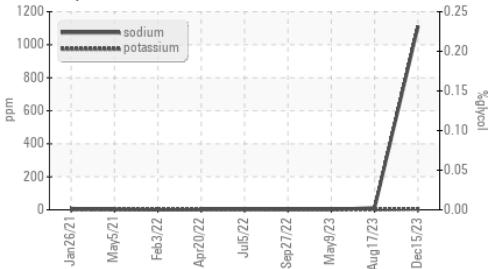
▲ Silicon (ppm)



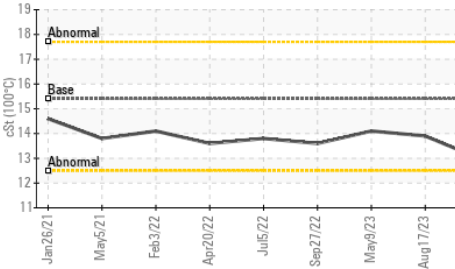
▲ Aluminum (ppm)



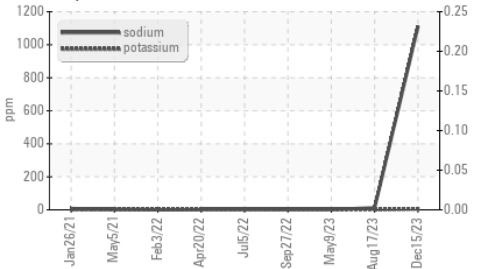
Glycol Contamination



Viscosity @ 100°C



Glycol Contamination

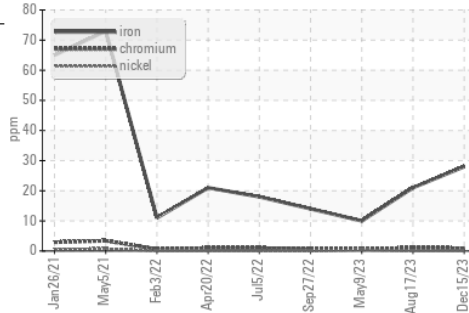


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

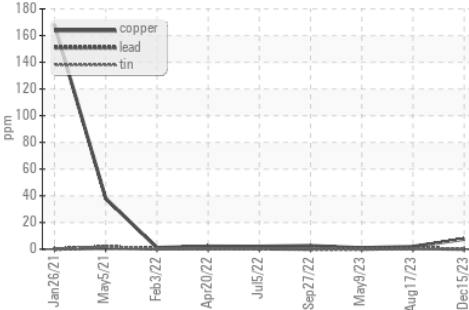
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	15.4	13.0	13.9	14.1

GRAPHS

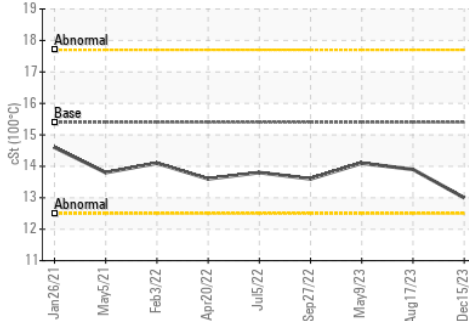
Ferrous Alloys



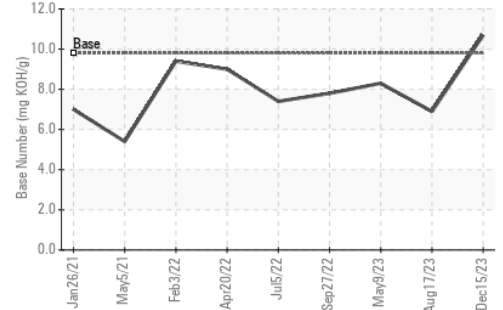
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0098792 **Received** : 29 Dec 2023
Lab Number : 06047685 **Diagnosed** : 02 Jan 2024
Unique Number : 10808293 **Diagnostician** : Jonathan Hester
Test Package : FLEET (Additional Tests: Glycol)

GFL Environmental - 19DR - Deep Run/TriEast
 2287 Leslie R Stroud Road
 Kinston, NC
 US 28504-9477
 Contact: Spencer Ligon
 spencer.ligon@gflenv.com
 T: (800)207-6618
 F:

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)