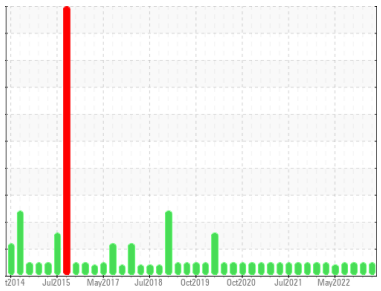
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
2517 PETERBILD isx-12
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 40 (48 QTS)

DIAGNOSIS

Recommendation
Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear
Metal levels are typical for a new component breaking in.

Contamination
There is no indication of any contamination in the oil.

Fluid Condition
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0089343**	GFL0056590	GFL0056501
Sample Date		Client Info		**20 Jul 2023**	03 Mar 2023	08 Nov 2022
Machine Age	mls	Client Info		**22396**	21496	20768
Oil Age	mls	Client Info		**0**	740	964
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**NORMAL**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	**<1.0**	<1.0	<1.0
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>165	**13**	30	30
Chromium	ppm	ASTM D5185m	>5	**<1**	1	1
Nickel	ppm	ASTM D5185m	>4	**0**	<1	0
Titanium	ppm	ASTM D5185m	>2	**0**	0	0
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	**2**	2	2
Lead	ppm	ASTM D5185m	>150	**0**	5	6
Copper	ppm	ASTM D5185m	>90	**<1**	2	2
Tin	ppm	ASTM D5185m	>5	**<1**	<1	<1
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	250	**3**	7	6
Barium	ppm	ASTM D5185m	10	**<1**	2	0
Molybdenum	ppm	ASTM D5185m	100	**67**	65	64
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m	450	**1099**	954	947
Calcium	ppm	ASTM D5185m	3000	**1217**	1159	1165
Phosphorus	ppm	ASTM D5185m	1150	**1187**	1045	960
Zinc	ppm	ASTM D5185m	1350	**1446**	1250	1245
Sulfur	ppm	ASTM D5185m	4250	**4037**	2852	3259

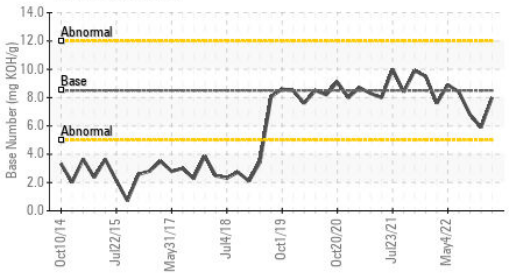
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>35	**7**	8	7
Sodium	ppm	ASTM D5185m	>216	**4**	6	10
Potassium	ppm	ASTM D5185m	>20	**1**	2	0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>7.5	**0.4**	0.6	0.7
Nitration	Abs/cm	*ASTM D7624	>20	**10.4**	12.6	13.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	**21.9**	25.7	26.8

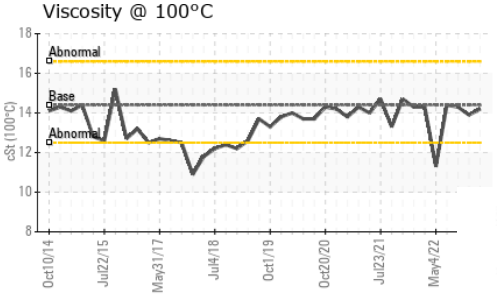
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**18.7**	23.6	24.8
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	**8.0**	5.9	6.8

OIL ANALYSIS REPORT

Base Number



Viscosity @ 100°C

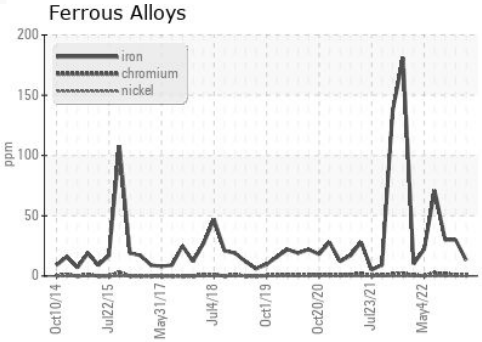


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

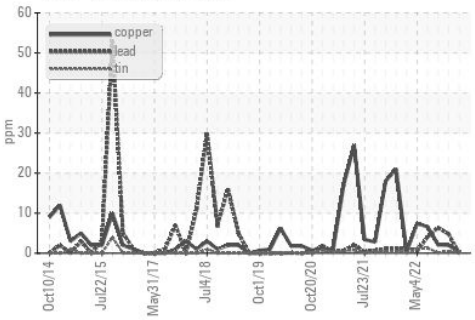
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	**14.2**	13.9	14.3

GRAPHS

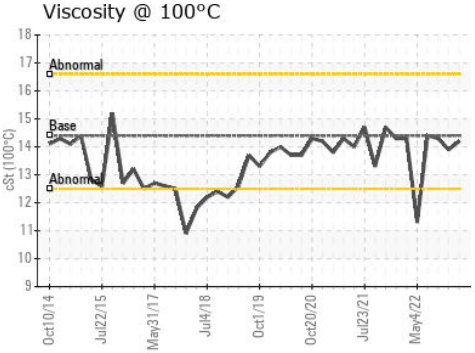
Ferrous Alloys



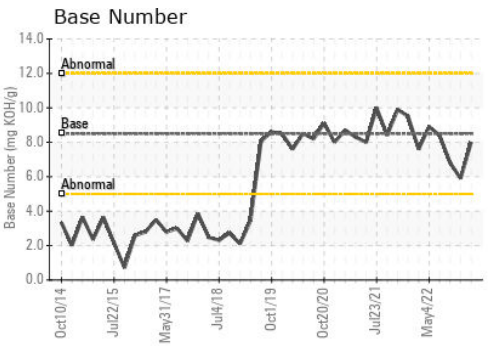
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0089343
Lab Number : 05905189
Unique Number : 10566545
Test Package : FLEET

Received : 24 Jul 2023
Diagnosed : 24 Jul 2023
Diagnostician : 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)

GFL Environmental - 001 - Raleigh(CNG)
3741 Conquest Drive
Garner, NC
US 27529
Contact: Craig Johnson
craig.johnson@gflenv.com
T: (919)662-7100
F: (919)662-7130

Report Id: GFL001 [WUSCAR] 05905189 (Generated: 07/24/2023 17:44:23) Rev: 1

Submitted By: Craig Johnson