



WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>



Machine Id  
**4596M**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>GFL0122360</b>	GFL0122527	GFL0108719
Sample Date		Client Info		<b>08 Jun 2024</b>	28 May 2024	02 Jan 2024
Machine Age	hrs	Client Info		<b>18456</b>	18385	17846
Oil Age	hrs	Client Info		<b>17846</b>	17846	17566
Filter Age	hrs	Client Info		<b>0</b>	0	17566
Oil Changed		Client Info		<b>Changed</b>	Not Changd	Changed
Filter Changed		Client Info		<b>Changed</b>	Not Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	ABNORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>90	<b>30</b>	23	45
Chromium	ppm	ASTM D5185m	>20	<b>2</b>	1	2
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	<1
Titanium	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>6</b>	4	6
Lead	ppm	ASTM D5185m	>40	<b>0</b>	0	5
Copper	ppm	ASTM D5185m	>330	<b>41</b>	40	▲ 383
Tin	ppm	ASTM D5185m	>15	<b>0</b>	0	2
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

There is no indication of any contamination in the oil.

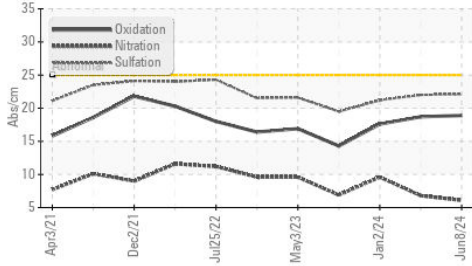
Silicon	ppm	ASTM D5185m	>25	<b>20</b>	18	20
Potassium	ppm	ASTM D5185m	>20	<b>4</b>	0	4
Fuel		WC Method	>3.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>6	<b>0.3</b>	0.3	0.7
Nitration	Abs/cm	*ASTM D7624	>20	<b>6.1</b>	6.8	9.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>22.1</b>	22.0	21.2
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

**FLUID CONDITION**

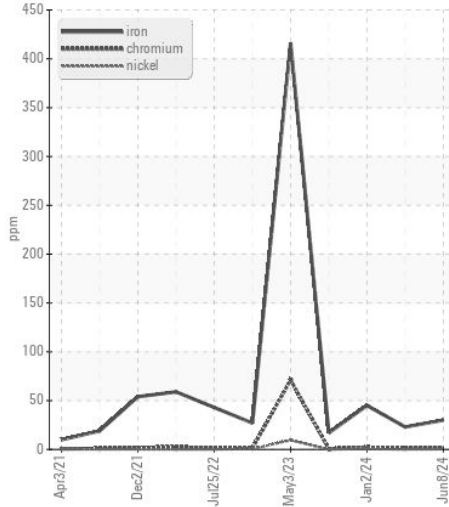
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>8</b>	6	26
Boron	ppm	ASTM D5185m	0	<b>47</b>	56	41
Barium	ppm	ASTM D5185m	0	<b>0</b>	0	11
Molybdenum	ppm	ASTM D5185m	60	<b>40</b>	40	34
Manganese	ppm	ASTM D5185m	0	<b>1</b>	<1	4
Magnesium	ppm	ASTM D5185m	1010	<b>593</b>	565	414
Calcium	ppm	ASTM D5185m	1070	<b>1629</b>	1528	1764
Phosphorus	ppm	ASTM D5185m	1150	<b>946</b>	914	1009
Zinc	ppm	ASTM D5185m	1270	<b>1173</b>	1094	1202
Sulfur	ppm	ASTM D5185m	2060	<b>3231</b>	3072	2977
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>18.9</b>	18.7	17.6
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	<b>10.2</b>	9.4	7.2
Visc @ 100°C	cSt	ASTM D445	15.4	<b>13.3</b>	13.3	13.7

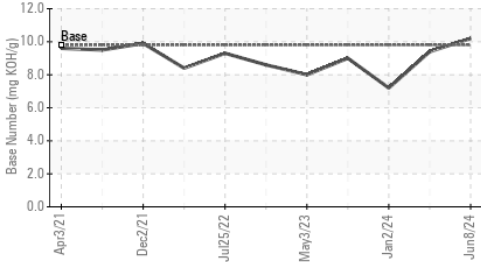
**FT-IR (Direct Trend)**



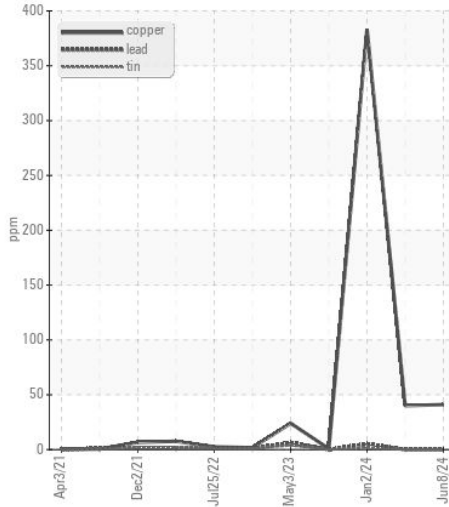
**Ferrous Alloys**



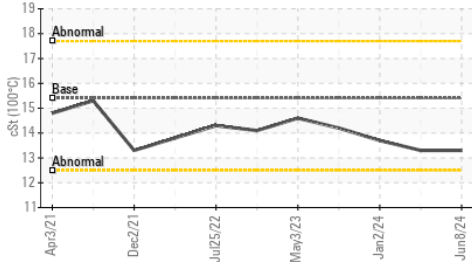
**Base Number**



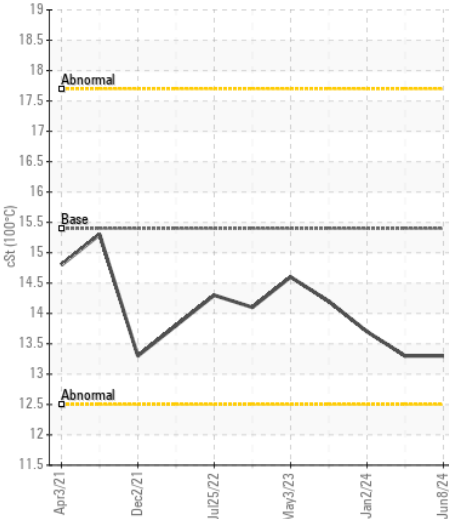
**Non-ferrous Metals**



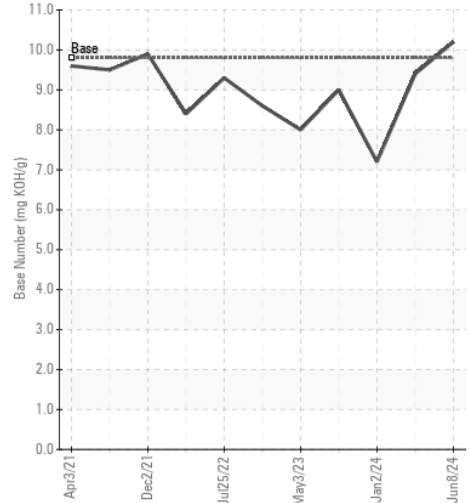
**Viscosity @ 100°C**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0122360  
**Lab Number** : 06215348  
**Unique Number** : 11088212  
**Test Package** : FLEET

**GFL Environmental - 415 - Michigan East**  
 6200 Elmridge  
 Sterling Heights, MI  
 US 48313  
 Contact: Frank Wolak  
 fwolak@gflenv.com  
 T: (586)825-9514  
 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)