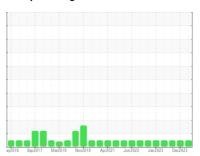


OIL ANALYSIS REPORT

Sample Rating Trend

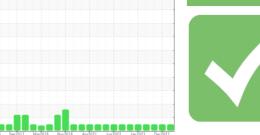






Machine Id 9143 Component **Diesel Engine**

PETRO CANADA DURON SHP 15W40 (38 LTR)



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

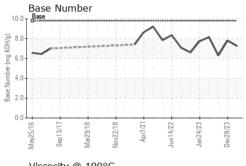
Fluid Condition

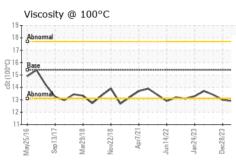
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date Client Info 13 Mar 2024 28 Dec 2023 16 Oct 2023 Aachine Age hrs Client Info 20540 645933 630186 630186 645933 630186 630186 645933 645933	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age hrs	Sample Number		Client Info		GFL0112475	GFL0099542	GFL0091574
Dil Changed	Sample Date		Client Info		13 Mar 2024	28 Dec 2023	16 Oct 2023
Client Info Changed Changed NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL	Machine Age	hrs	Client Info		20540	645933	630186
CONTAMINATION method mimit/base current history1 history2 history3 history2 history3 history2 history3 history3 history4 histo	Oil Age	hrs	Client Info		595	0	0
CONTAMINATION method limit/base current history1 history2	Oil Changed		Client Info		Changed	Changed	Changed
Victor V	Sample Status				NORMAL	NORMAL	NORMAL
	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	2.5	<1.0
WEAR METALS method limit/base current history1 history2 fron ppm ASTM D5185(m) >120 9 10 17 Chromium ppm ASTM D5185(m) >20 <1 0 <1 Bickel ppm ASTM D5185(m) >2 0 0 0 Citanium ppm ASTM D5185(m) >2 0 0 <1 Muminum ppm ASTM D5185(m) >2 0 0 <1 Muminum ppm ASTM D5185(m) >2 0 0 <1 Lead ppm ASTM D5185(m) >20 3 2 2 2 Cadd ppm ASTM D5185(m) >30 2 2 2 3 Calcium ppm ASTM D5185(m) >15 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Description	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	.S	method	limit/base	current	history1	history2
Astronome Astr	Iron	ppm	ASTM D5185(m)	>120	9	10	17
Description	Chromium	ppm	ASTM D5185(m)	>20	<1	0	<1
Silver	Nickel	ppm	ASTM D5185(m)	>5	<1	0	0
Aluminum	Titanium	ppm	ASTM D5185(m)	>2	0	0	0
Depart D	Silver	ppm	ASTM D5185(m)	>2	0	0	<1
Description	Aluminum	ppm	ASTM D5185(m)	>20	3	2	2
Second S	Lead	ppm	ASTM D5185(m)	>40	<1	<1	2
Antimony	Copper	ppm	ASTM D5185(m)	>330	2	2	3
Aranadium ppm ASTM D5185(m) 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 Cadmium ppm ASTM D5185(m) 0 2 2 3 Boron ppm ASTM D5185(m) 0 0 0 <1	Tin	ppm	ASTM D5185(m)	>15	<1	<1	<1
Decyllium	Antimony	ppm	ASTM D5185(m)		0	0	0
Cadmium ppm ASTM D5185(m) 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 0 2 2 3 Barium ppm ASTM D5185(m) 0 0 0 0 <1	Vanadium	ppm	ASTM D5185(m)		0	0	0
ADDITIVES	Beryllium	ppm	ASTM D5185(m)		0	0	0
Soron ppm ASTM D5185(m) 0 2 2 3	Cadmium	ppm	ASTM D5185(m)		0	0	0
Description	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185(m) 60 61 56 59 Manganese ppm ASTM D5185(m) 0 0 0 0 Magnesium ppm ASTM D5185(m) 1010 948 906 946 Calcium ppm ASTM D5185(m) 1070 1081 1071 1072 Phosphorus ppm ASTM D5185(m) 1150 963 939 924 Zinc ppm ASTM D5185(m) 1270 1170 1146 1180 Sulfur ppm ASTM D5185(m) 2060 2338 2289 2093 Lithium ppm ASTM D5185(m) <1	Boron	ppm	ASTM D5185(m)	0	2	2	3
Manganese ppm ASTM D5185(m) 0 0 0 0 Magnesium ppm ASTM D5185(m) 1010 948 906 946 Calcium ppm ASTM D5185(m) 1070 1081 1071 1072 Phosphorus ppm ASTM D5185(m) 1150 963 939 924 Zinc ppm ASTM D5185(m) 1270 1170 1146 1180 Sulfur ppm ASTM D5185(m) 2060 2338 2289 2093 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 6 6 7 Sodium ppm ASTM D5185(m) >20 1 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7624*	Barium	ppm	ASTM D5185(m)	0	0	0	<1
Magnesium ppm ASTM D5185(m) 1010 948 906 946 Calcium ppm ASTM D5185(m) 1070 1081 1071 1072 Phosphorus ppm ASTM D5185(m) 1150 963 939 924 Zinc ppm ASTM D5185(m) 1270 1170 1146 1180 Sulfur ppm ASTM D5185(m) 2060 2338 2289 2093 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 6 6 7 Sodium ppm ASTM D5185(m) >20 1 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7624* >4 0.2 0.2 0.6 Witration Abs/cm ASTM D7624* <th>Molybdenum</th> <th>ppm</th> <th>ASTM D5185(m)</th> <th>60</th> <th>61</th> <th>56</th> <th>59</th>	Molybdenum	ppm	ASTM D5185(m)	60	61	56	59
Calcium ppm ASTM D5185(m) 1070 1081 1071 1072 Phosphorus ppm ASTM D5185(m) 1150 963 939 924 Zinc ppm ASTM D5185(m) 1270 1170 1146 1180 Sulfur ppm ASTM D5185(m) 2060 2338 2289 2093 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 6 6 7 Sodium ppm ASTM D5185(m) >20 1 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >4 0.2 0.2 0.6 Witration Abs/cm ASTM D7624* >20 8.4 8.2 9.3	Manganese	ppm	ASTM D5185(m)	0	0	0	
Phosphorus ppm ASTM D5185(m) 1150 963 939 924 Zinc ppm ASTM D5185(m) 1270 1170 1146 1180 Sulfur ppm ASTM D5185(m) 2060 2338 2289 2093 Lithium ppm ASTM D5185(m) <1	Magnesium	ppm	ASTM D5185(m)	1010	948	906	946
Cinc ppm ASTM D5185(m) 1270 1170 1146 1180	Calcium	ppm	ASTM D5185(m)	1070	1081	1071	1072
Sulfur ppm ASTM D5185(m) 2060 2338 2289 2093 Lithium ppm ASTM D5185(m) 2060 2338 2289 2093 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 6 6 7 Sodium ppm ASTM D5185(m) 5 5 8 Potassium ppm ASTM D5185(m) >20 1 <1	Phosphorus	ppm	ASTM D5185(m)	1150	963	939	924
CONTAMINANTS method limit/base current history1 history2	Zinc	ppm	ASTM D5185(m)	1270	1170	1146	1180
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 6 6 7 Sodium ppm ASTM D5185(m) 5 5 8 Potassium ppm ASTM D5185(m) >20 1 <1 0 INFRA-RED method limit/base current history1 history2 Goot % % ASTM D7844* >4 0.2 0.2 0.6 Vitration Abs/cm ASTM D7624* >20 8.4 8.2 9.3	Sulfur	ppm	ASTM D5185(m)	2060	2338	2289	2093
Silicon ppm ASTM D5185(m) >25 6 6 7	Lithium	ppm	ASTM D5185(m)		<1	<1	<1
Sodium ppm ASTM D5185(m) 5 5 8 Potassium ppm ASTM D5185(m) >20 1 <1	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185(m) >20 1 <1	Silicon	ppm	ASTM D5185(m)	>25			7
INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >4 0.2 0.2 0.6 Vitration Abs/cm ASTM D7624* >20 8.4 8.2 9.3	Sodium	ppm	ASTM D5185(m)		5	5	8
Soot % % ASTM D7844* >4 0.2 0.2 0.6 Vitration Abs/cm ASTM D7624* >20 8.4 8.2 9.3	Potassium	ppm	ASTM D5185(m)	>20	1	<1	0
Vitration Abs/cm ASTM D7624* >20 8.4 8.2 9.3	INFRA-RED		method	limit/base	current	history1	history2
	Soot %	%	ASTM D7844*	>4	0.2	0.2	0.6
Sulfation Abs/.1mm ASTM D7415* >30 20.7 20.7 23.6	Nitration	Abs/cm	ASTM D7624*	>20	8.4	8.2	9.3
	Sulfation	Abs/.1mm	ASTM D7415*	>30	20.7	20.7	23.6



OIL ANALYSIS REPORT





FLUID DEGRAI	DATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	17.9	17.1	21.6
Base Number (BN)	mg KOH/g	ASTM D2896*	9.8	7.26	7.81	6.31
VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	12.9	13.0	13.4
GRAPHS						
Iron (ppm)			100	Lead (ppm)		
250 Severe			80	Severe		
200			E 60			
Abnormal			E 40	Abnormal		
50			20			
0 9 6		2 2	0	9	8	13 13
May25/16 Sep13/17 Mar29/18	Apr7/21	Jun 14/22 Jan 24/23	Dec28/23	May25/16 Sep13/17 Mar29/18	Nov22/18 Apr7/21	Jun14/22 Jan24/23 Dec28/23
Aluminum (ppm)		7 7		Chromium (pp	_	7 7 0
Severe			50	I I I I I I I I I I I I I I I I I I I		
40			40	Severe		
30 Abnormal			30	Abnormal		
20 - 0			20	Abrionna		
10	^		10			
3/17	Apr7/21	4,22	Dec28/23	Nay25/16 Sep13/17	Nov22/18	4/23
May25/16 Sep13/17 Mar29/18	Api	Jun14/22 Jan24/23	Dec2	May25/16 Sep13/17 Mar29/18	Nov2 Api	Jun14/22 Jan24/23 Dec28/23
Copper (ppm)			80	Silicon (ppm)		
Abnormal				Gercie		
300			60			
E 200			든 40	Absorbed		
100			20	Abnormal		
0			0	\		
Sep13/17 - Mar29/18 -	ovz.z./ 10	Jun14/22 Jan24/23	Dec28/23	May25/16 Sep13/17	Nov22/18 Apr7/21	Jun14/22 Jan24/23 Dec28/23
⊮ ∞ ≅ ≨ Viscosity @ 100°C	2	Ju Ja			No	Ja De
20 T 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			10.0	Base Number		
18 Abnormal			(B/HO) 8.0		\wedge	111
Base Base Abnorma		+-+	¥ 6.0			~ ~
Abnormal	\		0.8 Base Number (mg KOH/g)			
12			88 2.0			
10 9 2	21	.3	0.0	9 1 8	81	23 53
ay25/16 - ep13/17 - ep13/17 - ep13/18	Apr7/21.	un 14/22 an 24/23	ec28/23	ay25/16 ep13/17	ov22/18 Apr7/21	un14/22 an24/23 ec28/23



CALA ISO 17025:2017 Accredited Laboratory

Laboratory

Lab Number : 02623202 Unique Number : 5748321

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 550 - Rocky View County Sample No. : GFL0112475

Test Package : MOB 2

Received **Tested**

Diagnosed

: 19 Mar 2024 : 20 Mar 2024

: 20 Mar 2024 - Wes Davis

220 Carmek Blvd Rocky View County, AB

CA T1X 1X1 Contact: GFL Calgary calgarymaintenance@gflenv.com

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.

Submitted By: GFL Calgary

F: (403)369-6163