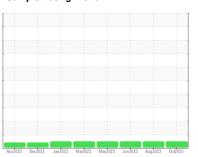


# **OIL ANALYSIS REPORT**

## **Sample Rating Trend**









Machine Id 232003 Component Diesel Engine Fluid

PETRO CANADA DURON SHP 15W40 (9 GAL)

# DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil

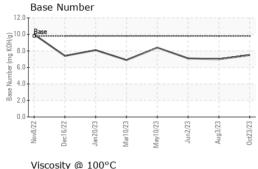
# **Fluid Condition**

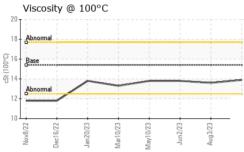
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number	) 0 <del>-</del> 10 (3	J GAL)	Nov2022 D	lec2022 Jan2023 Mar202	23 May2023 Jun2023 Aug2023	Oct2023		
Sample Date   Client Info   23 Oct 2023   03 Aug 2023   02 Jun 2023	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2	
Machine Age         hrs         Client Info         2602         2226         1827           Oil Age         hrs         Client Info         376         399         247           Oil Changed         Client Info         Not Changd         120         21.0         2	Sample Number		Client Info		PCA0106022	PCA0102952	PCA0098127	
Oil Age         hrs         Client Info         376         399         247           Oil Changed Sample Status         Client Info         Not Changd Not Changd Not Changd Not Changd Not Changd NorMAL         NORMAL	Sample Date		Client Info		23 Oct 2023	03 Aug 2023	02 Jun 2023	
Oil Changed   Client Info   Not Changd   NORMAL   NORMAL   NORMAL   NORMAL	Machine Age	hrs	Client Info		2602	2226	1827	
NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1   history2	Oil Age	hrs	Client Info		376	399	247	
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         >120         26         19         18           Chromium         ppm         ASTM D5185m         >20         <1         <1         <1           Nickel         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >2         0         0         <1           Aluminum         ppm         ASTM D5185m         >20         4         <1         0           Copper         ppm         ASTM D5185m         >20         4         <1         0           Tin         ppm         ASTM D5185m         >40         <1         0         0           Capper         ppm         ASTM D5185m         0         0         0         0           Tin<	Oil Changed		Client Info		Not Changd	Not Changd	Not Changd	
Fuel	Sample Status				NORMAL	NORMAL	NORMAL	
WEAR METALS	CONTAMINAT	ION	method	limit/base	current	history1	history2	
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0	
Iron	Glycol		WC Method		NEG	NEG	NEG	
Chromium         ppm         ASTM D5185m         >20         <1	WEAR METAL	S	method	limit/base	current	history1	history2	
Nickel	Iron	ppm	ASTM D5185m	>120	26	19	18	
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1	
Silver	Nickel	ppm	ASTM D5185m	>5	2	3	5	
Aluminum         ppm         ASTM D5185m         >20         4         <1         0           Lead         ppm         ASTM D5185m         >40         <1	Titanium	ppm	ASTM D5185m	>2	0	0	0	
Lead         ppm         ASTM D5185m         >40         <1	Silver	ppm	ASTM D5185m	>2	<1	0	<1	
Copper         ppm         ASTM D5185m         >330         8         73         26           Tin         ppm         ASTM D5185m         >15         1         1         2           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         -1         0         1           Barium         ppm         ASTM D5185m         0         -4         2         2           Molybdenum         ppm         ASTM D5185m         0         -1         -1         -1           Manganese         ppm         ASTM D5185m         0         -1         -1         -1           Magnesium         ppm         ASTM D5185m         1010         927         917         942           Calcium         ppm         ASTM D5185m         1070         1101         1056         1112           Phosphorus         ppm         ASTM D5185m         1270         1207	Aluminum	ppm	ASTM D5185m	>20	4	<1	0	
Tin	Lead	ppm	ASTM D5185m	>40	<1	0	0	
Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         <1         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         <1         0         1           Barium         ppm         ASTM D5185m         0         4         2         2         2           Molybdenum         ppm         ASTM D5185m         60         67         62         69           Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         927         917         942           Calcium         ppm         ASTM D5185m         1070         1101         1056         1112           Phosphorus         ppm         ASTM D5185m         1270         1207         1179         1277           Sulfur         ppm         ASTM D5185m         2060         3033         2372         3291           CONTAMINANTS         method         limit/base         current	Copper	ppm	ASTM D5185m	>330	8	73	26	
Cadmium         ppm         ASTM D5185m         <1         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         <1	Tin	ppm	ASTM D5185m	>15	1			
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         <1	Vanadium	ppm	ASTM D5185m		0	0	0	
Boron   ppm   ASTM D5185m   0   4   2   2   2	Cadmium	ppm	ASTM D5185m		<1	0	0	
Barium         ppm         ASTM D5185m         0         4         2         2           Molybdenum         ppm         ASTM D5185m         60         67         62         69           Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         927         917         942           Calcium         ppm         ASTM D5185m         1070         1101         1056         1112           Phosphorus         ppm         ASTM D5185m         1150         1043         917         1037           Zinc         ppm         ASTM D5185m         1270         1207         1179         1277           Sulfur         ppm         ASTM D5185m         2060         3033         2372         3291           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         6         4           Sodium         ppm         ASTM D5185m         7         10         10           Potassium         ppm         ASTM D5185m         >20<	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum         ppm         ASTM D5185m         60         67         62         69           Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm	ASTM D5185m	0	<1	0	1	
Manganese         ppm         ASTM D5185m         0         <1	Barium	ppm	ASTM D5185m	0	4	2	2	
Magnesium         ppm         ASTM D5185m         1010         927         917         942           Calcium         ppm         ASTM D5185m         1070         1101         1056         1112           Phosphorus         ppm         ASTM D5185m         1150         1043         917         1037           Zinc         ppm         ASTM D5185m         1270         1207         1179         1277           Sulfur         ppm         ASTM D5185m         2060         3033         2372         3291           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         6         4           Sodium         ppm         ASTM D5185m         7         10         10         10           Potassium         ppm         ASTM D5185m         >20         30         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1.7         0.8         0.9           Nitration         Abs/cm         *ASTM D	Molybdenum	ppm	ASTM D5185m	60	67	62	69	
Calcium         ppm         ASTM D5185m         1070         1101         1056         1112           Phosphorus         ppm         ASTM D5185m         1150         1043         917         1037           Zinc         ppm         ASTM D5185m         1270         1207         1179         1277           Sulfur         ppm         ASTM D5185m         2060         3033         2372         3291           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         6         4           Sodium         ppm         ASTM D5185m         >20         30         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1.7         0.8         0.9           Nitration         Abs/cm         *ASTM D7624         >20         9.6         8.3         8.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.6         20.3         20.8 <td colspan<="" td=""><th>Manganese</th><td>ppm</td><td>ASTM D5185m</td><td>0</td><th>&lt;1</th><td>&lt;1</td><td>&lt;1</td></td>	<th>Manganese</th> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>&lt;1</th> <td>&lt;1</td> <td>&lt;1</td>	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus         ppm         ASTM D5185m         1150         1043         917         1037           Zinc         ppm         ASTM D5185m         1270         1207         1179         1277           Sulfur         ppm         ASTM D5185m         2060         3033         2372         3291           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         6         4           Sodium         ppm         ASTM D5185m         7         10         10           Potassium         ppm         ASTM D5185m         >20         30         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1.7         0.8         0.9           Nitration         Abs/cm         *ASTM D7624         >20         9.6         8.3         8.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.6         20.3         20.8           FLUID DEGRADATION         method <td< td=""><th>Magnesium</th><td>ppm</td><td>ASTM D5185m</td><td>1010</td><th>927</th><td>917</td><td>942</td></td<>	Magnesium	ppm	ASTM D5185m	1010	927	917	942	
Zinc         ppm         ASTM D5185m         1270         1207         1179         1277           Sulfur         ppm         ASTM D5185m         2060         3033         2372         3291           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         6         4           Sodium         ppm         ASTM D5185m         7         10         10           Potassium         ppm         ASTM D5185m         >20         30         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1.7         0.8         0.9           Nitration         Abs/cm         *ASTM D7624         >20         9.6         8.3         8.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.6         20.3         20.8           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414	Calcium	ppm	ASTM D5185m	1070		1056	1112	
Sulfur         ppm         ASTM D5185m         2060         3033         2372         3291           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         6         4           Sodium         ppm         ASTM D5185m         7         10         10           Potassium         ppm         ASTM D5185m         >20         30         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1.7         0.8         0.9           Nitration         Abs/cm         *ASTM D7624         >20         9.6         8.3         8.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.6         20.3         20.8           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1         16.0         17.0		ppm				917		
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         5         6         4           Sodium         ppm         ASTM D5185m         7         10         10           Potassium         ppm         ASTM D5185m         >20         30         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1.7         0.8         0.9           Nitration         Abs/cm         *ASTM D7624         >20         9.6         8.3         8.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.6         20.3         20.8           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1         16.0         17.0		ppm			1207			
Silicon         ppm         ASTM D5185m         >25         5         6         4           Sodium         ppm         ASTM D5185m         7         10         10           Potassium         ppm         ASTM D5185m         >20         30         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1.7         0.8         0.9           Nitration         Abs/cm         *ASTM D7624         >20         9.6         8.3         8.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.6         20.3         20.8           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1         16.0         17.0			ASTM D5185m	2060	3033	2372	3291	
Sodium         ppm         ASTM D5185m         7         10         10           Potassium         ppm         ASTM D5185m         >20         30         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1.7         0.8         0.9           Nitration         Abs/cm         *ASTM D7624         >20         9.6         8.3         8.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.6         20.3         20.8           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1         16.0         17.0	CONTAMINAN	TS	method	limit/base	current	history1	history2	
Potassium         ppm         ASTM D5185m         >20         30         2         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1.7         0.8         0.9           Nitration         Abs/cm         *ASTM D7624         >20         9.6         8.3         8.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.6         20.3         20.8           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1         16.0         17.0				>25				
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         1.7         0.8         0.9           Nitration         Abs/cm         *ASTM D7624         >20         9.6         8.3         8.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.6         20.3         20.8           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1         16.0         17.0								
Soot %         %         *ASTM D7844 >4         1.7         0.8         0.9           Nitration         Abs/cm         *ASTM D7624 >20         9.6         8.3         8.3           Sulfation         Abs/.1mm         *ASTM D7415 >30         21.6         20.3         20.8           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         16.1         16.0         17.0		ppm	ASTM D5185m	>20	30	2	2	
Nitration         Abs/cm         *ASTM D7624         >20         9.6         8.3         8.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.6         20.3         20.8           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1         16.0         17.0	INFRA-RED		method	limit/base	current	history1	history2	
Sulfation         Abs/.1mm         *ASTM D7415         >30         21.6         20.3         20.8           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1         16.0         17.0								
FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.1     16.0     17.0								
Oxidation Abs/.1mm *ASTM D7414 >25 <b>16.1</b> 16.0 17.0	Sulfation	Abs/.1mm	*ASTM D7415	>30	21.6	20.3	20.8	
	FLUID DEGRAD	OATION	method	limit/base	current	history1	history2	
Base Number (BN)         mg KOH/g         ASTM D2896         9.8         7.5         7.0         7.1	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.1	16.0	17.0	
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.5	7.0	7.1	



# **OIL ANALYSIS REPORT**

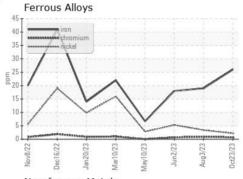


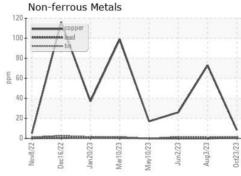


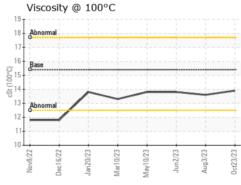
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

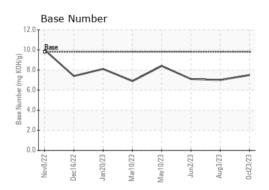
FLUID PROPERTIES		method				history2	
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	13.6	13.8	

# **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10723357 Test Package : FLEET

: PCA0106022 : 05994997

To discuss this sample report, contact Customer Service at 1-800-237-1369.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received

: 31 Oct 2023 Diagnosed Diagnostician : Wes Davis

: 01 Nov 2023

LRS - BETHEL HEIGHTS (NWA AR) 848 HWY 264 E BETHEL HEIGHTS, AR

US 72764 Contact: ROBERT HEATH

rheath@Irsrecycles.com T: (479)305-8958

\* - 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)

F: