

OIL ANALYSIS REPOR

Machine Id 131522

Component **Diesel Engine**

PETRO CANADA DURON SHP 10W30 (--- QTS)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

Elemental level of silicon (Si) above normal indicating ingress of seal material.

Fluid Condition

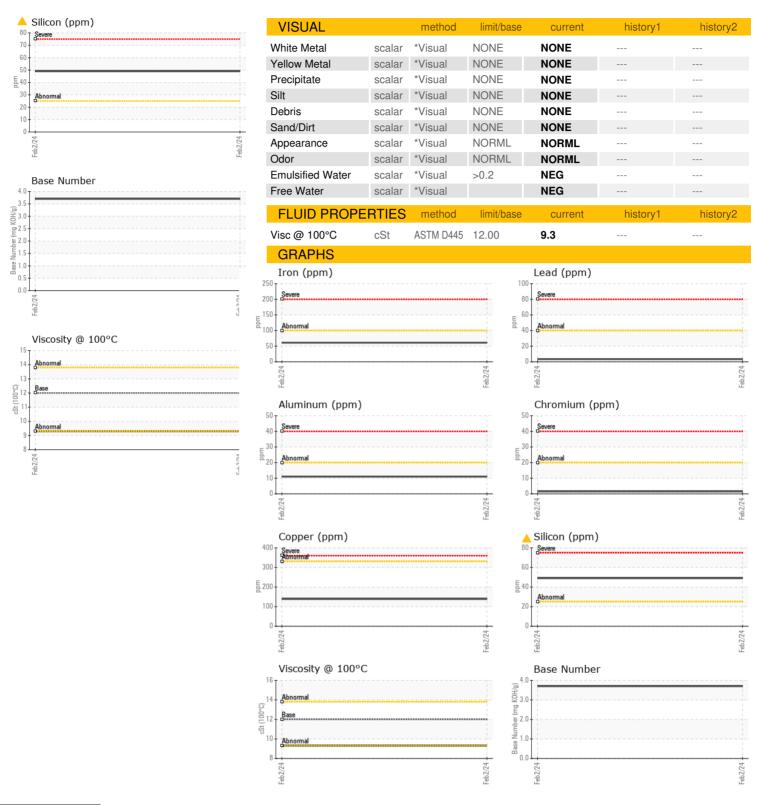
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

RT	Sampl	D	IF		
		Feb 202	24		
TION	method	limit/base	current	history1	
	Oli t I f -	-	0.4.04.4.70.00		

Cample Date Machine Age mis Client Info 6653	(13)				Feb 2024		
Cample Date Machine Age mis Client Info 6653	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age mls Client Info 6653 Dil Age mls Client Info 0 Dil Changed Client Info Changed Sample Status ABNORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0	Sample Number		Client Info		PCA0117068		
Coli Age	Sample Date		Client Info		02 Feb 2024		
Contamper Cont	Machine Age	mls	Client Info		6653		
CONTAMINATION method minit/base current history1 history2	Oil Age	mls	Client Info		0		
CONTAMINATION method limit/base current history1 history2	Oil Changed		Client Info		Changed		
Fuel	Sample Status				ABNORMAL		
Water Glycol WC Method >0.2 NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 61 Chromium ppm ASTM D5185m >20 2 Nickel ppm ASTM D5185m >4 0 Silver ppm ASTM D5185m >4 0 Silver ppm ASTM D5185m >40 3 Aluminum ppm ASTM D5185m >20 11 Lead ppm ASTM D5185m >40 3 Copper ppm ASTM D5185m >15 4 Vanadium ppm ASTM D5185m >16 Cadmium ppm ASTM D5185m 2 205	CONTAMINATI	ON	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0		
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 61 Chromium ppm ASTM D5185m >20 2 Nickel ppm ASTM D5185m >4 0 Silver ppm ASTM D5185m >3 0 Aluminum ppm ASTM D5185m >20 11 Lead ppm ASTM D5185m >40 3 Lead ppm ASTM D5185m >40 3 Copper ppm ASTM D5185m >4 Copper ppm ASTM D5185m >15 4 Caddium ppm ASTM D5185m 0 6 Barium ppm ASTM D5185m 0 18 <	Water		WC Method	>0.2	NEG		
Post	Glycol		WC Method		NEG		
Chromium	WEAR METALS	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	61		
Silver	Chromium	ppm	ASTM D5185m	>20	2		
Silver	Nickel	ppm	ASTM D5185m	>4	0		
Aluminum ppm ASTM D5185m >20 111	Titanium	ppm	ASTM D5185m		<1		
Lead	Silver	ppm	ASTM D5185m	>3	0		
Copper	Aluminum	ppm	ASTM D5185m	>20	11		
ASTM D5185m STM D5185m S	Lead	ppm	ASTM D5185m	>40	3		
Vanadium ppm ASTM D5185m <1 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 205 Barium ppm ASTM D5185m 0 6 Molybdenum ppm ASTM D5185m 50 18 Manganese ppm ASTM D5185m 950 63 Magnesium ppm ASTM D5185m 950 63 Calcium ppm ASTM D5185m 995 888 Zinc ppm ASTM D5185m 1180 1008 Sulfur ppm ASTM D5185m 2600 2978 CONTAMINANTS method limit/base current history1 </td <td>Copper</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>330</td> <td>139</td> <td></td> <td></td>	Copper	ppm	ASTM D5185m	>330	139		
Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 205 Barium ppm ASTM D5185m 0 6 Molybdenum ppm ASTM D5185m 50 18 Manganese ppm ASTM D5185m 0 3 Magnesium ppm ASTM D5185m 950 63 Calcium ppm ASTM D5185m 995 888 Phosphorus ppm ASTM D5185m 2600 2978 Zinc ppm ASTM D5185m 2600 2978 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m 20	Tin	ppm	ASTM D5185m	>15	4		
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 205 Barium ppm ASTM D5185m 0 6 Molybdenum ppm ASTM D5185m 50 18 Manganese ppm ASTM D5185m 0 3 Magnesium ppm ASTM D5185m 950 63 Calcicium ppm ASTM D5185m 995 888 Phosphorus ppm ASTM D5185m 995 888 Zinc ppm ASTM D5185m 2600 2978 Sulfur ppm ASTM D5185m 2600 2978 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m	Vanadium	ppm	ASTM D5185m		<1		
Boron ppm ASTM D5185m 2 205 Barium ppm ASTM D5185m 0 6 ASTM D5185m 0 18 ASTM D5185m 50 18 ASTM D5185m 0 3 ASTM D5185m 0 3 ASTM D5185m 0 3 ASTM D5185m 0 3 ASTM D5185m 0 0 3 ASTM D5185m 0 0 0 0 0 0 0 0 0	Cadmium	ppm	ASTM D5185m		0		
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 50 18 Manganese ppm ASTM D5185m 0 3 Magnesium ppm ASTM D5185m 950 63 Calcium ppm ASTM D5185m 1050 1100 Phosphorus ppm ASTM D5185m 1180 1008 Zinc ppm ASTM D5185m 2600 2978 Sulfur ppm ASTM D5185m 2600 2978 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 49 Potassium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185	Boron	ppm	ASTM D5185m	2	205		
Manganese ppm ASTM D5185m 0 3 Magnesium ppm ASTM D5185m 950 63 Calcium ppm ASTM D5185m 1050 1100 Phosphorus ppm ASTM D5185m 995 888 Zinc ppm ASTM D5185m 2600 2978 Sulfur ppm ASTM D5185m 2600 2978 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >25 49 Sodium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624	Barium	ppm	ASTM D5185m	0	6		
Magnesium ppm ASTM D5185m 950 63 Calcium ppm ASTM D5185m 1050 1100 Phosphorus ppm ASTM D5185m 995 888 Zinc ppm ASTM D5185m 1180 1008 Sulfur ppm ASTM D5185m 2600 2978 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 49 Sodium ppm ASTM D5185m 2 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 Sulfation Abs/.1mm *ASTM D7415 >30	Molybdenum	ppm	ASTM D5185m	50	18		
Calcium ppm ASTM D5185m 1050 1100 Phosphorus ppm ASTM D5185m 995 888 Zinc ppm ASTM D5185m 1180 1008 Sulfur ppm ASTM D5185m 2600 2978 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 49 Sodium ppm ASTM D5185m 2 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 FLUID DEGRADATION *ASTM D7414 >25 <t< td=""><td>Manganese</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><td>3</td><td></td><td></td></t<>	Manganese	ppm	ASTM D5185m	0	3		
Phosphorus ppm ASTM D5185m 995 888 Zinc ppm ASTM D5185m 1180 1008 Sulfur ppm ASTM D5185m 2600 2978 CONTAMINANTS method limit/base current history1 history2 Soliicon ppm ASTM D5185m >25 49 Sodium ppm ASTM D5185m 2 Potassium ppm ASTM D5185m 20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 Nitration Abs/cm *ASTM D7624 >20 7.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >	Magnesium	ppm	ASTM D5185m	950	63		
Zinc ppm ASTM D5185m 1180 1008 Sulfur ppm ASTM D5185m 2600 2978 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 ▲ 49 Sodium ppm ASTM D5185m 2 Potassium ppm ASTM D5185m 20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 Nitration Abs/cm *ASTM D7624 >20 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *AS	Calcium	ppm	ASTM D5185m	1050	1100		
Sulfur ppm ASTM D5185m 2600 2978 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 ▲ 49 Sodium ppm ASTM D5185m 2 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 Nitration Abs/cm *ASTM D7624 >20 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	Phosphorus	ppm	ASTM D5185m	995	888		
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 ▲ 49 Sodium ppm ASTM D5185m 2 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 Nitration Abs/cm *ASTM D7624 >20 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	Zinc	ppm	ASTM D5185m	1180	1008		
Solition ppm ASTM D5185m >25	Sulfur	ppm	ASTM D5185m	2600	2978		
Sodium	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.2 Nitration Abs/cm *ASTM D7624 >20 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	Silicon	ppm	ASTM D5185m	>25	49		
INFRA-RED	Sodium	ppm	ASTM D5185m		2		
Soot % % *ASTM D7844 >3 0.2 Nitration Abs/cm *ASTM D7624 >20 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	Potassium	ppm	ASTM D5185m	>20	1		
Nitration Abs/cm *ASTM D7624 >20 7.2 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 20.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	Soot %	%	*ASTM D7844	>3	0.2		
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.5	Nitration	Abs/cm	*ASTM D7624	>20	7.2		
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.6		
	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 3.7	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.5		
	Base Number (BN)	mg KOH/g	ASTM D2896		3.7		



OIL ANALYSIS REPORT







Laboratory Sample No.

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

Lab Number : 06086993 **Unique Number** : 10874438

: PCA0117068 Received **Tested**

: 14 Feb 2024 - Don Baldridge Diagnosed

: 13 Feb 2024

: 13 Feb 2024

Test Package : MOB 1 (Additional Tests: TBN) 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)

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