

OIL ANALYSIS REPORT

SAMP

Sample Rating Trend

NORMAL

KEMP QUARRIES / PRYOR STON **WP049**

Component **Diesel Engine**

PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation Resample at the next service interval to monitor. (

Customer Sample Comment: PM performed. Engine oil sample taken. Engine oil, and all filters changed.)

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

Fluid Condition

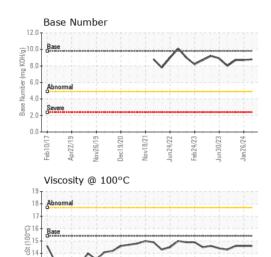
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Number	Client Info	ı	PCA0086288	PCA00		
PLE INFORMATION	method	limit/base	current	his		
	16 2017 Apr201	9 Nov2019 Dec2020 Nov2	021 Jun2022 Feb2023 Jun2023	Jan2024		
NE [69389]						
VE [CO0001						

Sample Number		Client Info		PCA0086288	PCA0086271	PCA0084321
Sample Date		Client Info		15 Feb 2024	26 Jan 2024	18 Nov 2023
Machine Age	hrs	Client Info		12777	12494	12172
Oil Age	hrs	Client Info		283	322	264
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
	ION	mathad	limit/bass	Olive on t	historia	history?
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>2.1	<1.0	<1.0	<1.0
Water		WC Method	>0.21	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>51	8	4	5
Chromium	ppm	ASTM D5185m	>11	<1	0	0
Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>31	3	1	<1
Lead	ppm	ASTM D5185m	>26	1	<1	<1
Copper	ppm	ASTM D5185m	>26	0	0	<1
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 2	history1	history2 <1
	ppm ppm				•	
Boron		ASTM D5185m	0	2	3	<1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	2 0	3	<1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 85	3 0 60	<1 0 59
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 85 0	3 0 60 <1	<1 0 59
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 0 85 0 1433	3 0 60 <1 964	<1 0 59 0 967
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	2 0 85 0 1433 1504	3 0 60 <1 964 1032	<1 0 59 0 967 1098
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	2 0 85 0 1433 1504 1527	3 0 60 <1 964 1032 1093	<1 0 59 0 967 1098 1081
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	2 0 85 0 1433 1504 1527	3 0 60 <1 964 1032 1093 1298	<1 0 59 0 967 1098 1081 1265
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 0 85 0 1433 1504 1527 1814 5147	3 0 60 <1 964 1032 1093 1298 3251	<1 0 59 0 967 1098 1081 1265 3177
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 0 85 0 1433 1504 1527 1814 5147	3 0 60 <1 964 1032 1093 1298 3251 history1	<1 0 59 0 967 1098 1081 1265 3177 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	2 0 85 0 1433 1504 1527 1814 5147 current	3 0 60 <1 964 1032 1093 1298 3251 history1	<1 0 59 0 967 1098 1081 1265 3177 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >22 >31	2 0 85 0 1433 1504 1527 1814 5147 current 5	3 0 60 <1 964 1032 1093 1298 3251 history1 3	<1 0 59 0 967 1098 1081 1265 3177 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >22 >31 >20	2 0 85 0 1433 1504 1527 1814 5147 current 5 3 <1	3 0 60 <1 964 1032 1093 1298 3251 history1 3 <1	<1 0 59 0 967 1098 1081 1265 3177 history2 3 2 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >22 >31 >20	2 0 85 0 1433 1504 1527 1814 5147 current 5 3 <1	3 0 60 <1 964 1032 1093 1298 3251 history1 3 <1 <1	<1 0 59 0 967 1098 1081 1265 3177 history2 3 2 0 history2 0.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >22 >31 >20	2 0 85 0 1433 1504 1527 1814 5147 current 5 3 <1	3 0 60 <1 964 1032 1093 1298 3251 history1 3 <1 <1	<1 0 59 0 967 1098 1081 1265 3177 history2 3 2 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76145	0 0 0 0 1010 1070 1150 1270 2060 limit/base >22 >31 >20	2 0 85 0 1433 1504 1527 1814 5147 current 5 3 <1 current	3 0 60 <1 964 1032 1093 1298 3251 history1 3 <1 <1	<1 0 59 0 967 1098 1081 1265 3177 history2 3 2 0 history2 0.6 5.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D7415 method	0 0 0 1010 1070 1150 1270 2060 limit/base >22 >31 >20 limit/base >3 >20 >3 	2 0 85 0 1433 1504 1527 1814 5147 current 5 3 <1 current 0.5 5.8 17.9	3 0 60 <1 964 1032 1093 1298 3251 history1 3 <1 <1 <1 history1 0.5 5.9 18.2 history1	<1 0 59 0 967 1098 1081 1265 3177 history2 3 2 0 history2 0.6 5.6 18.2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76145	0 0 0 0 1010 1070 1150 1270 2060 limit/base >22 >31 >20 limit/base >3 >20 >3	2 0 85 0 1433 1504 1527 1814 5147 current 5 3 <1 current 0.5 5.8 17.9	3 0 60 <1 964 1032 1093 1298 3251 history1 3 <1 <1 <1 10.5 5.9 18.2	<1 0 59 0 967 1098 1081 1265 3177 history2 3 2 0 history2 0.6 5.6 18.2



OIL ANALYSIS REPORT



VISUAL		method				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	alar *Visual NORML NORML		NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.21 NEG		NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
ELLUD DDADE	DTIES					
FLUID PROPE	RTIES	method				history2

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Visc @ 100°C	cSt	ASTM D445	15.4	14.6	14.6	14.6

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	Feb10/17	Apr22/19	Nov26/19	Dec19/20	Nov18/21	Jun24/22	Feb24/23	Jun30/23	Jan26/24		Feb10/17	Apr22/19	Nov26/19	Dec19/20	Nov18/21	Jun24/22	Feb24/23	Jun30/23	Jan26/24
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CSt (100°C)	Base									u) agu	Abn	ormal							
12	Abir	ormal	~~							Base Number (mg KOH/g) 0.0 0.7	Seve	ere							
10	4	6	6	20	21	22	- 53	23	24	0.0	Ļ.	6	6	20	21	22		23	





Laboratory Unique Number : 10930271

Sample No. : PCA0086288 Lab Number : 06121438

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

: 18 Mar 2024 : 19 Mar 2024 Diagnosed

: 20 Mar 2024 - Jonathan Hester

Kemp Quarries - Pryor Stone - Pryor

1050 E 520 Rd Pryor, OK US 74361 Contact:

Test Package : MOB 1 (Additional Tests: TBN) To discuss this sample report, contact Customer Service at 1-800-237-1369.

pryor@pryorstone.com

* - 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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F: