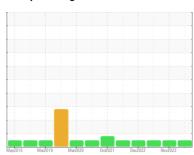


OIL ANALYSIS REPORT



Sample Rating Trend







KEMP QUARRIES / PRYOR STONE [69727] 1797

Component **Diesel Engine**

PETRO CANADA DURO

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.

N SHP 15W40 (- GAL)	May2015	Mar2019 Mar2020	Oct2021 Dec2022 No	v2023	
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0086614	PCA0084350	PCA0083995
Sample Date		Client Info		20 Mar 2024	27 Nov 2023	12 Jun 2023
Machine Age	hrs	Client Info		2244	1948	1642
Oil Age	hrs	Client Info		298	306	429
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS	S ,	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	9	7	11
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	3	2	7
Lead	ppm	ASTM D5185m	>40	2	<1	<1
Copper	ppm	ASTM D5185m	>330	1	<1	15
Tin	ppm	ASTM D5185m	>15	1	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	2	4	3
Barium	ppm	ASTM D5185m	0	1	0	0
Molybdenum	ppm	ASTM D5185m	60	68	54	
Manganese	10 10 100			00	54	64
	ppm	ASTM D5185m	0	<1	0	64 0
Magnesium	ppm	ASTM D5185m ASTM D5185m	0 1010			
•				<1	0	0
Magnesium	ppm	ASTM D5185m	1010	<1 1006	0 852	0 1109
Magnesium Calcium	ppm	ASTM D5185m ASTM D5185m	1010 1070	<1 1006 1265	0 852 1046	0 1109 1331
Magnesium Calcium Phosphorus	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150	<1 1006 1265 1109	0 852 1046 970	0 1109 1331 1159
Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270	<1 1006 1265 1109 1323	0 852 1046 970 1149	0 1109 1331 1159 1506
Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060	<1 1006 1265 1109 1323 3376	0 852 1046 970 1149 3123 history1	0 1109 1331 1159 1506 4176 history2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	1010 1070 1150 1270 2060	<1 1006 1265 1109 1323 3376 current 4 0	0 852 1046 970 1149 3123 history1	0 1109 1331 1159 1506 4176 history2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	1010 1070 1150 1270 2060	<1 1006 1265 1109 1323 3376 current	0 852 1046 970 1149 3123 history1	0 1109 1331 1159 1506 4176 history2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m METHOD ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >25	<1 1006 1265 1109 1323 3376 current 4 0	0 852 1046 970 1149 3123 history1 3	0 1109 1331 1159 1506 4176 history2 3 2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >25 >20	<1 1006 1265 1109 1323 3376 current 4 0 2	0 852 1046 970 1149 3123 history1 3 4	0 1109 1331 1159 1506 4176 history2 3 2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >25 >20	<1 1006 1265 1109 1323 3376 current 4 0 2 current	0 852 1046 970 1149 3123 history1 3 4 1	0 1109 1331 1159 1506 4176 history2 3 2 0
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m *ASTM D5185m	1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	<1 1006 1265 1109 1323 3376 current 4 0 2 current 0.1	0 852 1046 970 1149 3123 history1 3 4 1 history1	0 1109 1331 1159 1506 4176 history2 3 2 0 history2

Oxidation

Abs/.1mm *ASTM D7414 >25

Base Number (BN) mg KOH/g ASTM D2896 9.8

15.7

9.0

15.4

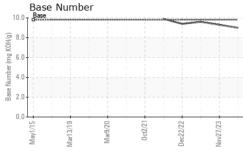
9.3

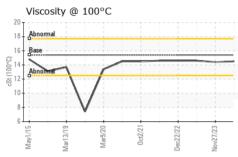
15.9

9.6



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	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID FROF	LULIES	method			HISTOLAL	HISTOLYZ
Visc @ 100°C	cSt	ASTM D445	15.4	14.5	14.4	14.6

GRAPHS									
Iron (ppm)					Lead (p	pm)			
Severe					80 Severe				
					E Abnormal				
Abnormal			-	-	Abnormal				
					20				
May1/15 –	Mar9/20	0ct2/21-	2/22 +	1/23	May1/15	Mar9/20 -	0ct2/21	2/22	7/23
May1/15	Mar	00	Dec22/22	Nov27/23	May	Mar13/19 Mar9/20	Oct	Dec22/22	Nov27/23
Aluminum (pp	m)				Chromic	um (ppm)			
Severe					Severe				
Abnormal					20				
					20 Abnormal				
					10				
119	720	12/	727	723	0	/19	12/	722	/23
Mar13/19	Mar9/20	0ct2/21	Dec22/22	Nov27/23	May1/15	Mar13/19 Mar9/20	Oct2/21	Dec22/22	Nov27/23
Copper (ppm)					Silicon (ppm)			
Severe					80 - Severe				
					60				
					Abnormal				
					20				
19	20	/21	22	- 53	0	20	12/	22-	23
May1/15	Mar9/20	0ct2/21	Dec22/22	Nov27/23	May1/15	Mar13/19 .	0ct2/21	Dec22/22	Nov27/23
Viscosity @ 10	00°C				Base Nu				
Abnormal					10.0 Base			-	
Base					83se Mumber (mg KOH/g)				
Abnormal					ap 4.0				
V					eg 2.0				
6	0.			- 23	0.0	6 0			22
May1/15	Mar9/20	Oct2/21	Dec22/22	Nov27/23	May1/15	Mar13/19 .	Oct2/21	Dec22/22	Nov27/23
_ ≥				Z	~	2		0	Ź



Laboratory Sample No. Lab Number : 06128442 Unique Number : 10942593

: PCA0086614

Received **Tested** Diagnosed

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 25 Mar 2024 : 26 Mar 2024

: 28 Mar 2024 - Don Baldridge

Kemp Quarries - Pryor Stone - Pryor 1050 E 520 Rd

Pryor, OK US 74361 Contact:

T:

F:

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)