

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

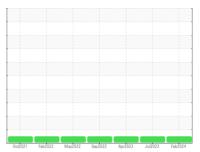


KEMP QUARRIES / BCS - GRAVETTE [66901] Machine Id OHT118

Component

Diesel Engine

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





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Pm3)

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

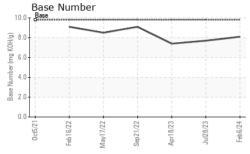
Fluid Condition

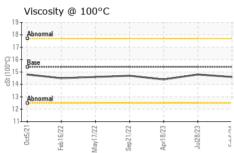
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

OAM LE IN ON	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0108536	PCA0086406	PCA0086049
Sample Date		Client Info		06 Feb 2024	28 Jul 2023	18 Apr 2023
Machine Age	hrs	Client Info		78920	78920	78734
Oil Age	hrs	Client Info		78920	78920	78734
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	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 METAL	S	method	limit/base	current	history1	history2
Iron		ASTM D5185m	>100	48	66	49
	ppm					
Chromium	ppm	ASTM D5185m	>20	<1	1	<1
Nickel	ppm	ASTM D5185m	>2	1	2	<1
Titanium	ppm		>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	2	2	<1
Lead	ppm	ASTM D5185m	>40	10	10	0
Copper	ppm		>330	3	5	3
Tin	ppm	ASTM D5185m	>15	2	3	2
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	<1	2	0
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	67	83	65
Manganese	ppm	ASTM D5185m	\cap		4	
Magnesium		7101111 20100111	U	<1	<1	1
	ppm	ASTM D5185m	1010	<1 1050	<1 1237	1006
Calcium	ppm	ASTM D5185m				
-		ASTM D5185m	1010	1050	1237	1006
Calcium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070	1050 1165	1237 1328	1006 1163
Calcium Phosphorus Zinc Sulfur	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150	1050 1165 1147	1237 1328 1307	1006 1163 1009
Calcium Phosphorus Zinc	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270	1050 1165 1147 1363	1237 1328 1307 1600	1006 1163 1009 1312
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	1010 1070 1150 1270 2060	1050 1165 1147 1363 3113	1237 1328 1307 1600 4148 history1	1006 1163 1009 1312 3296 history2
Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	1010 1070 1150 1270 2060 limit/base	1050 1165 1147 1363 3113	1237 1328 1307 1600 4148 history1	1006 1163 1009 1312 3296 history2
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	1010 1070 1150 1270 2060 limit/base	1050 1165 1147 1363 3113 current	1237 1328 1307 1600 4148 history1	1006 1163 1009 1312 3296 history2
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm TS ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >25	1050 1165 1147 1363 3113 current 3	1237 1328 1307 1600 4148 history1 4	1006 1163 1009 1312 3296 history2 3
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm TS ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m METHOD ASTM D5185m METHOD ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >25 >20	1050 1165 1147 1363 3113 current 3 8	1237 1328 1307 1600 4148 history1 4 2 <1	1006 1163 1009 1312 3296 history2 3 2
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m MEthod ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1010 1070 1150 1270 2060 limit/base >25 >20	1050 1165 1147 1363 3113 current 3 8 2	1237 1328 1307 1600 4148 history1 4 2 <1	1006 1163 1009 1312 3296 history2 3 2 0
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m method *ASTM D7844	1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	1050 1165 1147 1363 3113 current 3 8 2 current	1237 1328 1307 1600 4148 history1 4 2 <1 history1	1006 1163 1009 1312 3296 history2 3 2 0 history2
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D7415	1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	1050 1165 1147 1363 3113 current 3 8 2 current 2.2 11.7	1237 1328 1307 1600 4148 history1 4 2 <1 history1 2.4 11.1	1006 1163 1009 1312 3296 history2 3 2 0 history2 1.9 10.6
Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D7415	1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20 >3	1050 1165 1147 1363 3113 current 3 8 2 current 2.2 11.7 23.4	1237 1328 1307 1600 4148 history1 4 2 <1 history1 2.4 11.1 23.1	1006 1163 1009 1312 3296 history2 3 2 0 history2 1.9 10.6 21.7



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

I LOID I NOI							
Visc @ 100°C	cSt	ASTM D445	15.4	14.6	14.8	14.4	

VISC @ TOO'C	CSI	ASTIVI D443	15.4	14.0	14.0	14.	4
GRAPHS							
Iron (ppm)				Lead (ppm)		
Severe				80 Severe			
Abnormal				Abnormal			
Abnormal				40 7 4			
				20			
0ct5/21 Feb16/22	Sep21/22 -	Apr18/23 - Jul28/23 -	Feb 6/24 .	0ct5/21	May17/22 ·	Apr18/23	Julz 6/23 - Feh 6/24 -
	Sep	Apr	뽄			Apr	3 4
Aluminum (ppm)				Chromium 50 T 3	(ppm)		
0 - Severe				40 Severe			
Abnormal				20 Abnormal			
0				20 - Anormal			
0	-			0		-	
Oct5/21 Feb16/22 May17/22	Sep21/22	Apr18/23	Feb6/24 .	Oct5/21	May17/22	Apr18/23	Jul20/23 -
⊂ ≥ Copper (ppm)	co.	4 ,		Silicon (ppr	_	d.	,
O Severe a				80 Severe			
00				60			
0				Abnormal			
0				20			
22 22 22	- 22	23	24	721	- 22	23	23
0ct5/21 Feb16/22	Sep21/22	Apr18/23 Jul28/23	Feb6/24.	Oct5/21	May17/22	Apr18/23 -	Julz0/23 - Feh6/24 -
Viscosity @ 100°	С			Base Numb	per		
Abnormal				10.0 Base (BH) 8.0			
				8.0 0.8 Mumber (mg KOH/g) 4.0 2.0 0.8 2.0 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0			
6 Base 4 Abnormal				4.0			
2+				2.0			
Oct5/21	ep21/22 -	pr18/23+	Feb6/24	0ct5/21+	ay17/22 +	pr18/23 +	UIZ0/23 +
oc eb1	ep2	pri	æ	0cd	ay1 ep2	pri)	ZIUI.





Laboratory Sample No.

Lab Number : 06100658 **Unique Number** : 10898888

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0108536 Received

: 26 Feb 2024 **Tested** : 27 Feb 2024 Diagnosed

: 28 Feb 2024 - Sean Felton

Kemp Quarries - Benton County Stone - Gravette

15100 N Hwy 59 Sulphur Springs, AR US 72768

Contact: GRAVETTE NOTIFICATIONS gravette@bentoncountystone.com

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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