

## **OIL ANALYSIS REPORT**

Sample Rating Trend



#### Machine Id 20071 Component

Diesel Engine

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

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

#### 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.

iAL)		Nov2021 A	pr2022 Nov2022 Dec	2022 Mar2023 Jun2023	Jul2023	
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0106027	PCA0095294	PCA0098116
Sample Date		Client Info		23 Oct 2023	27 Jul 2023	08 Jun 2023
Machine Age	hrs	Client Info		11040	10678	10281
Oil Age	hrs	Client Info		724	397	574
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	7	6	8
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	0
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m	>330	1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
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	2	2
Barium	ppm	ASTM D5185m	0	4	2	2
Molybdenum	ppm	ASTM D5185m	60	66	62	68
Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Magnesium	ppm	ASTM D5185m	1010	928	928	934
Calcium	ppm	ASTM D5185m	1070	1077	1051	1082
Phosphorus	ppm	ASTM D5185m	1150	994	942	1009
Zinc	ppm	ASTM D5185m	1270	1190	1178	1247
Sulfur	ppm	ASTM D5185m	2060	2862	3063	3362
CONTAMINAN	TS	method	limit/base	current	history1	history2
	TS ppm	method ASTM D5185m		current 5	history1 9	history2 3
Silicon						
Silicon Sodium	ppm	ASTM D5185m	>25	5	9	3
Silicon Sodium	ppm ppm	ASTM D5185m ASTM D5185m	>25	5 9	9 8	3 8
Silicon Sodium Potassium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	>25 >20 limit/base	5 9 5	9 8 3	3 8 2
Silicon Sodium Potassium INFRA-RED	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m method	>25 >20 limit/base >3	5 9 5 current	9 8 3 history1	3 8 2 history2
Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> *ASTM D7844	>25 >20 limit/base >3 >20	5 9 5 current 0.7	9 8 3 history1 0.4	3 8 2 history2 0.5
Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415	>25 >20 limit/base >3 >20	5 9 5 current 0.7 9.4	9 8 3 history1 0.4 7.3	3 8 2 history2 0.5 7.8
Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415	>25 >20 limit/base >3 >20 >30	5 9 5 current 0.7 9.4 20.7	9 8 3 history1 0.4 7.3 19.1	3 8 2 history2 0.5 7.8 20.0



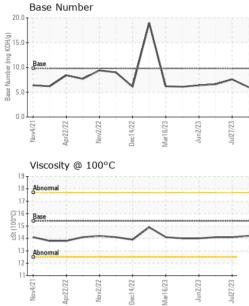
Nov4/21

Apr22/22

Nov2/22

# **OIL ANALYSIS REPORT**

VISUAL



Λ		VISUAL		method	iiiiii/base	current	nistory i	Thistoryz
		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
1 \		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
722	/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Dec14/22 Mar16/23	Jun2/23 Jul27/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
					>0.2			
		Free Water	scalar	*Visual		NEG	NEG	NEG
		FLUID PROPE		method	limit/base	current	history1	history2
$\sim$		Visc @ 100°C	cSt	ASTM D445	15.4	14.2	14.1	14.1
		GRAPHS						
		Ferrous Alloys						
Dec14/22 - Mar16/23 -	Jun2/23 -	350 - iron chromium	-Λ					
Deci	Juľ	300 nickel						
		250	11					
		툡 200 -	11					
		150 -	11					
		100	11					
		50	1.1					
		22	722	/23	/23			
		Nov4/21 Apr22/22 Nov2/22	Dec14/22 Mar16/23	Jun2/23	Jul27/23			
		Non-ferrous Meta						
		25 T			1			
		20 - Copper						
		tin						
		15						
		Mdd 10	1.1					
		10-						
		5	1					
			K					
		22	22	23	53			
		Nov4/21 Apr22/22 Nov2/22	Dec14/22 Mar16/23	Jun2/23	Jul27/23			
		Viscosity @ 100°C						
		<sup>19</sup> T	_		20	Base Number		
		18 - Abnormal			20		٨	
		17			<b>Q</b> 15	0	$\Lambda$	
		G <sup>16</sup> Bacc			(B)HOX Bay 10 Base Number		/ \	
		() 16 Base () 15 3 14			ی ای او	Base	1 \	
		<sup>4</sup> / <sub>14</sub>	$\sim$	-	mpe			
					ase N		VL	
		13				.0		
		13 Abnormal						
		13 Abnormal 12 -			0	0		
		12 11	4/22	2/23	0	4/21	4,22 3,23	2/23
		12	Dec14/22	Jun2/23	)ul[2]/23	Nov4/21	Dec14/22 + Mar16/23 +	Jun2/23
		Apri22222			Jul27/23	Nov4/21 Apr22/22 Nov2/22		
d	Laboratory	22	501 Madis	son Ave., Ca	ry, NC 2751	Nov4/21 Apr22/22 Nov2/22	BETHEL HEIGH	ITS (NWA AR
ANAB	Sample No.	: WearCheck USA - 5 : PCA0106027	501 Madis <b>Received</b>	son Ave., Ca I : 31 (	ry, NC 2751 Oct 2023	Nov4/21 Apr22/22 Nov2/22	BETHEL HEIGH 8	<b>HTS (NWA AR</b> 48 HWY 264 E
	Sample No. Lab Number	: WearCheck USA - 5 : PCA0106027 : 05994976	501 Madis Received Diagnose	con Ave., Ca I : 31 ( ed : 01 I	ry, NC 2751 Oct 2023 Nov 2023	Nov4/21 Apr22/22 Nov2/22	BETHEL HEIGH 8	<b>ITS (NWA AR</b> 48 HWY 264 E HEIGHTS, AF
	Sample No. Lab Number Unique Numbe	: WearCheck USA - 5 : PCA0106027 : 05994976 r : 10723336	501 Madis <b>Received</b>	con Ave., Ca I : 31 ( ed : 01 I	ry, NC 2751 Oct 2023	Nov4/21 Apr22/22 Nov2/22	B <b>ETHEL HEIGH</b> 8 BETHEL	<b>ITS (NWA AR</b> 48 HWY 264 I HEIGHTS, AF US 72764
ertificate L2367	Sample No. Lab Number Unique Numbe Test Package	: WearCheck USA - 5 : PCA0106027 : 05994976 r : 10723336	501 Madis Received Diagnose Diagnost	con Ave., Ca I : 31 ( ed : 01 f ician : Wes	ry, NC 2751 Oct 2023 Nov 2023 s Davis	Nov4/21 Apr22/22 Nov2/22	BETHEL HEIGH 8 BETHEL Contact: RC	<b>ITS (NWA AR</b> 48 HWY 264 E

Submitted By: ALSO ORIVANAR ORIHAR ORITOP - JAMIE HAYWORTH