

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id **551** Component **Diesel Engine** Fluid **PETRO CANADA DURON HP 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

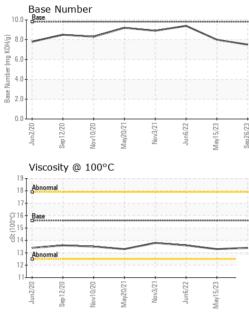
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

		Jun2020 S	ep2020 Nov2020 May20	021 Nov2021 Jun2022 May2023	Sep2023	
SAMPLE INFORM	NATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0082889	PCA0069601	PCA0058435
Sample Date		Client Info		26 Sep 2023	15 May 2023	06 Jun 2022
Machine Age	hrs	Client Info		0	9732	6131
Oil Age	hrs	Client Info		0	504	5628
Oil Changed		Client Info		Not Changd	Not Changd	N/A
Sample Status				NORMAL	ABNORMAL	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	10	10	30
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	0	<1	2
Lead	ppm	ASTM D5185m	>40	2	<1	<1
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	0000			•	0	0
oaamam	ppm	ASTM D5185m		0	0	0
ADDITIVES	ррш	method	limit/base	current	0 history1	history2
	ppm		limit/base	-		-
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron Barium	ppm	method ASTM D5185m	limit/base	current 2	history1 4	history2 6
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base	current 2 2	history1 4 0	history2 6 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 2 2 61	history1 4 0 63	history2 6 0 62
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 2 61 <1	history1 4 0 63 0	history2 6 0 62 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 2 61 <1 844	history1 4 0 63 0 993	history2 6 0 62 <1 918
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 2 61 <1 844 1044	history1 4 0 63 0 993 1230	history2 6 0 62 <1 918 1116
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	Current 2 2 61 <1 844 1044 957	history1 4 0 63 0 993 1230 1063	history2 6 0 62 <1 918 1116 1002
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	Current 2 2 61 <1 844 1044 957 1128	history1 4 0 63 0 993 1230 1063 1303	history2 6 0 62 <1 918 1116 1002 1203
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	Current 2 2 61 <1 844 1044 957 1128 2731	history1 4 0 63 0 993 1230 1063 1303 3718	history2 6 0 62 <1 918 1116 1002 1203 3511
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	Current 2 2 61 <1 844 1044 957 1128 2731 Current	history1 4 0 63 0 993 1230 1063 1303 3718 history1	history2 6 0 62 <1 918 1116 1002 1203 3511 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	method ASTM D5185m	limit/base >25	current 2 61 <1 844 1044 957 1128 2731 current 20	history1 4 0 63 0 993 1230 1063 1303 3718 history1 ▲ 46	history2 6 0 62 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	method ASTM D5185m	limit/base >25	current 2 61 <1 844 1044 957 1128 2731 current 20 0	history1 4 0 63 0 993 1230 1063 1303 3718 history1 4 4 0 63 1063 1303 3718	history2 6 0 62 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	method ASTM D5185m	limit/base >25 >20	current 2 2 61 <1 844 1044 957 1128 2731 current 20 0 2	history1 4 0 63 0 993 1230 1063 1303 3718 history1 ▲ 46 2 0	history2 6 0 62 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm	method ASTM D5185m	limit/base >25 >20 limit/base	current 2 61 <1 844 1044 957 1128 2731 current 20 0 2 current	history1 4 0 63 0 993 1230 1063 1303 3718 history1 ▲ 46 2 0 105 history1	history2 6 0 62 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	method ASTM D5185m	limit/base >25 >20 limit/base >3	current 2 61 <1 844 1044 957 1128 2731 current 20 0 2 current 0.3	history1 4 0 63 0 993 1230 1063 1303 3718 history1 ▲ 46 2 0 history1 ● 0 0 0.3	history2 6 0 62 <1
ADDITIVES 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	method ASTM D5185m	limit/base >25 >20 limit/base >3 >20	current 2 61 <1 844 1044 957 1128 2731 current 20 0 2 0.3 8.3	history1 4 0 63 0 993 1230 1063 1303 3718 history1 ▲ 46 2 0 history1 0.3 8.0 	history2 6 0 62 <1
ADDITIVES 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	method ASTM D5185m ASTM D5185m	Iimit/base >25 >20 Imit/base >3 >20 >3 >20 >30	current 2 61 <1 844 1044 957 1128 2731 current 20 0 2 current 0.3 8.3 19.7	history1 4 0 63 0 993 1230 1063 1303 3718 history1 ▲ 46 2 0 history1 0.3 8.0 18.9	history2 6 0 62 <1



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VISUAL



	Laboratory Sample No. Lab Number Unique Numbe	5							
		³³ 14 13 12 11 02721des 020101voN	May20/21	Jun6/22	0.0 Base Mum Sep266/23	Jun2/20 Sep12/20 Nov10/20	May20/21 Nov3/21	Jun6/22	
		17 5 16 Base 100 15 3 14			0.8 6.0 4.0 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8				
		J S S S S S S S S S S S S S S S S S S S		ul veM	ළි 10.0	Base Number		~	
		2	May20/21	Jun6/22	Sep 26/23				
		6- E							
		8 8							
		Non-ferrous Meta	G May20/21- Nov3/21-	Jun6/22 May15/23	Sep26/23				
		10-5-							
May20/21 Nov3/21	Jun6/22 May15/23	20 <u>E</u> 15		$\langle \rangle$					
v21	22	Ferrous Alloys							
		Visc @ 100°C GRAPHS	cSt	ASTM D445	15.6	13.4	13.3	13.6	
		Free Water	scalar RTIES	*Visual method	limit/base	NEG current	NEG history1	NEG history2	
En.	2 •	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
May2021	Appearance Odor	scalar scalar	*Visual *Visual	NORML NORML	NORML NORML	NORML NORML	NORML NORML		
	Debris Sand/Dirt	scalar scalar	*Visual *Visual	NONE NONE	NONE NONE	NONE	NONE NONE		
	Silt	scalar	*Visual	NONE	NONE	NONE	NONE		
	Yellow Metal Precipitate	scalar scalar	*Visual *Visual	NONE NONE	NONE NONE	NONE NONE	NONE NONE		
	Vallau Matal	e e e l e u	*\/:	NONE	NONE		NONE		