

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend





NORMAL

Machine Id **596** 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.

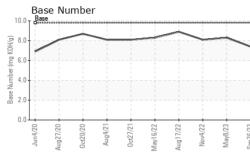
#### **Fluid Condition**

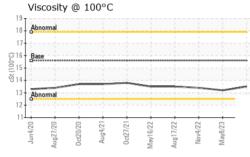
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0082893	PCA0069523	PCA0069249
Sample Date		Client Info		26 Sep 2023	08 May 2023	04 Nov 2022
Machine Age	hrs	Client Info		0	4799	1251
Oil Age	hrs	Client Info		0	588	1251
Oil Changed		Client Info		Not Changd	Not Changd	N/A
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
,			11 11 11			
WEAR METAL		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	15	14	14
Chromium	ppm	ASTM D5185m	>20	<1	1	1
Nickel	ppm	ASTM D5185m	>4	<1	<1	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	<1	<1
Aluminum	ppm	ASTM D5185m	>20	0	7	8
Lead	ppm	ASTM D5185m	>40	2	1	3
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		0	0	0
		and a file of all				la la tana 0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	iimii/base	<1	history1 2	nistory2 3
	ppm ppm		iimi/base			
Boron		ASTM D5185m	limi/base	<1	2	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limil/base	<1 2	2 0	3 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		<1 2 63	2 0 64	3 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		<1 2 63 <1	2 0 64 <1	3 0 63 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		<1 2 63 <1 884	2 0 64 <1 1022	3 0 63 <1 1047
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		<1 2 63 <1 884 1053	2 0 64 <1 1022 1179	3 0 63 <1 1047 1268
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		<1 2 63 <1 884 1053 995	2 0 64 <1 1022 1179 1062	3 0 63 <1 1047 1268 1068
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	limit/base	<1 2 63 <1 884 1053 995 1180	2 0 64 <1 1022 1179 1062 1303	3 0 63 <1 1047 1268 1068 1431
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 2 63 <1 884 1053 995 1180 2907	2 0 64 <1 1022 1179 1062 1303 3462	3 0 63 <1 1047 1268 1068 1431 3887
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 2 63 <1 884 1053 995 1180 2907 current	2 0 64 <1 1022 1179 1062 1303 3462 history1	3 0 63 <1 1047 1268 1068 1431 3887 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 2 63 <1 884 1053 995 1180 2907 current 6	2 0 64 <1 1022 1179 1062 1303 3462 history1 6	3 0 63 <1 1047 1268 1068 1431 3887 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 2 63 <1 884 1053 995 1180 2907 current 6 0	2 0 64 <1 1022 1179 1062 1303 3462 history1 6 2	3 0 63 <1 1047 1268 1068 1431 3887 history2 6 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base	<1 2 63 <1 884 1053 995 1180 2907 current 6 0 10	2 0 64 <1 1022 1179 1062 1303 3462 history1 6 2 11	3 0 63 <1 1047 1268 1068 1431 3887 history2 6 1 1 15
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	<1 2 63 <1 884 1053 995 1180 2907 current 6 0 10 current	2 0 64 <1 1022 1179 1062 1303 3462 history1 6 2 11 11 history1	3 0 63 <1 1047 1268 1068 1431 3887 history2 6 1 1 15 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	<1 2 63 <1 884 1053 995 1180 2907 Current 6 0 10 Current 0.4	2 0 64 <1 1022 1179 1062 1303 3462 history1 6 2 11 6 2 11 history1 0.5	3 0 63 <1 1047 1268 1068 1431 3887 history2 6 1 1 15 history2 0.4
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20	<1 2 63 <1 884 1053 995 1180 2907 current 6 0 10 current 0.4 9.2	2 0 64 <1 1022 1179 1062 1303 3462 history1 6 2 11 6 2 11 0.5 8.5	3 0 63 <1 1047 1268 1068 1431 3887 history2 6 1 15 history2 0.4 8.6
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	Imit/base >25 >20 Imit/base >3 >20 >30	<1 2 63 <1 884 1053 995 1180 2907 current 6 0 10 current 0.4 9.2 20.6	2 0 64 <1 1022 1179 1062 1303 3462 history1 6 2 11 6 2 11 0.5 8.5 20.6	3 0 63 <1 1047 1268 1068 1431 3887 <b>history2</b> 6 1 1 15 <b>history2</b> 0.4 8.6 20.6
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	limit/base >25 >20 limit/base >3 >20 >30 >30	<1 2 63 <1 884 1053 995 1180 2907 Current 6 0 10 Current 0.4 9.2 20.6 Current	2 0 64 <1 1022 1179 1062 1303 3462 history1 6 2 11 6 2 11 0.5 8.5 20.6 history1	3 0 63 <1 1047 1268 1068 1431 3887 history2 6 1 15 history2 0.4 8.6 20.6 history2

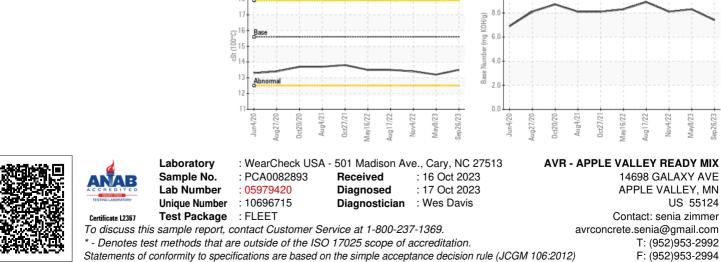


# **OIL ANALYSIS REPORT**





		method	limit/base			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 PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.6	13.5	13.2	13.4
30 - nickel						
30 mickel 25 10 5 0	0ci21/21 May16/22	Aug17/22 Nov4/22 May0/23	Sap26/23			



Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Submitted By: senia zimmer