

## **OIL ANALYSIS REPORT**

Sample Rating Trend



687 Component Diesel Engine

Charlestown

# PETRO CANADA DURON SHP 10W30 (11 GAL)

SAMPLE INFORMATION method

### DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Area

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

#### Fluid Condition

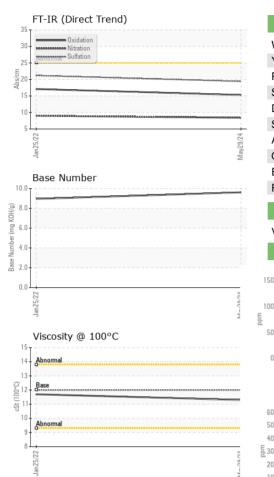
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR		method	iimii/base	current	nistory i	nistory2
Sample Number		Client Info		PCA0098446	WC0594325	
Sample Date		Client Info		29 May 2024	25 Jan 2022	
Machine Age	mls	Client Info		125096	0	
Oil Age	mls	Client Info		18000	0	
Oil Changed		Client Info		Changed	N/A	
Sample Status				NORMAL	NORMAL	
			12			
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	0.2	
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	10	16	
Chromium	ppm	ASTM D5185m	>5	1	2	
Nickel	ppm	ASTM D5185m	>2	- <1	<1	
Titanium	ppm	ASTM D5185m	~ -	<1	<1	
Silver	ppm	ASTM D5185m	>3	<1	0	
Aluminum	ppm	ASTM D5185m	>30	8	4	
Lead	ppm	ASTM D5185m	>30	0	<1	
Copper	ppm	ASTM D5185m	>150	11	4	
Tin	ppm	ASTM D5185m	>5	<1	<1	
Antimony	ppm	ASTM D5185m	20		<1	
Vanadium	ppm	ASTM D5185m		0	0	
Cadmium	ppm	ASTM D5185m		0	0	
	le le construction de la constru			U		
ADDITIVES	<b>b</b> him	method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base 2			history2
		method ASTM D5185m		current	history1	
Boron	ppm	method ASTM D5185m	2	current 6	history1 4	
Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	2 0 50	current 6 0	history1 4 0	
Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	current 6 0 61	history1 4 0 62	
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	current 6 0 61 <1	history1 4 0 62 <1	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	current 6 0 61 <1 981	history1 4 0 62 <1 971	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	current 6 0 61 <1 981 1136	history1 4 0 62 <1 971 1106	
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	2 0 50 950 1050 995	current     6     0     61     <1     981     1136     1046	history1 4 0 62 <1 971 1106 982	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	2 0 50 0 950 1050 995 1180	current     6     0     61     <1     981     1136     1046     1292	history1 4 0 62 <1 971 1106 982 1291	
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	2 0 50 950 1050 995 1180 2600	current     6     0     61     <1     981     1136     1046     1292     3299     current	history1 4 0 62 <1 971 1106 982 1291 2771 history1	    
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	2 0 50 0 950 1050 995 1180 2600	current     6     0     61     <1     981     1136     1046     1292     3299     current     3	history1   4   0   62   <1   971   1106   982   1291   2771   history1   5	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	method     ASTM D5185m	2 0 50 950 1050 995 1180 2600 <b>imit/base</b> >20	current     6     0     61     <1     981     1136     1046     1292     3299     current     3     2	history1   4   0   62   <1   971   1106   982   1291   2771   history1   5   1	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >20	current     6     0     61     <1     981     1136     1046     1292     3299     current     3     2     17	history1   4   0   62   <1   971   1106   982   1291   2771   history1   5   1   2	     history2  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method     ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >20 <b>imit/base</b>	current   6   0   61   <1   981   1136   1046   1292   3299   current   3   2   17   current	history1   4   0   62   <1   971   1106   982   1291   2771   history1   5   1   2   history1	     history2   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 ppm TS ppm ppm	method     ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >20 20 <b>limit/base</b> >3	current   6   0   61   <1   981   1136   1046   1292   3299   current   3   2   17   current   0.6	history1   4   0   62   <1   971   1106   982   1291   2771   history1   5   1   2   history1   0.7	     history2  history2  history2
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 <b>TS</b> ppm ppm ppm	method     ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >20 <b>imit/base</b> >20 <b>imit/base</b>	current   6   0   61   <1   981   1136   1046   1292   3299   current   3   2   17   current   0.6   8.4	history1   4   0   62   <1   971   1106   982   1291   2771   history1   5   1   2   history1   0.7   9.0	     history2   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 ppm TS ppm ppm	method     ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >20 20 <b>limit/base</b> >3	current   6   0   61   <1   981   1136   1046   1292   3299   current   3   2   17   current   0.6	history1   4   0   62   <1   971   1106   982   1291   2771   history1   5   1   2   history1   0.7	     history2  history2  history2
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	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >20 <b>imit/base</b> >20 <b>imit/base</b>	current   6   0   61   <1   981   1136   1046   1292   3299   current   3   2   17   current   0.6   8.4	history1   4   0   62   <1   971   1106   982   1291   2771   history1   5   1   2   history1   0.7   9.0	     history2  history2  history2
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	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >20 <b>imit/base</b> >3 >20 >30	current   6   0   61   <1   981   1136   1046   1292   3299   current   3   2   17   current   0.6   8.4   19.4	history1   4   0   62   <1   971   1106   982   1291   2771   history1   5   1   2   history1   0.7   9.0   21.2	     history2   history2  history2
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 TS ppm ppm ppm ppm	method     ASTM D5185m     ASTM D7185M     ASTM D7624     *ASTM D7415     method	2 0 50 0 950 1050 995 1180 2600 2600 20 20 220 220 20 33 20 330	current   6   0   61   <1   981   1136   1046   1292   3299   current   3   2   17   current   0.6   8.4   19.4   current	history1   4   0   62   <1   971   1106   982   1291   2771   history1   5   1   2   history1   0.7   9.0   21.2   history1	     history2   history2  history2

Submitted By: BRYAN WINTER



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		VISUAL		method					history2
	N	/hite Metal	scalar	*Visual	NONE		NONE	NONE	
	Y	ellow Metal	scalar	*Visual	NONE		NONE	NONE	
	Р	recipitate	scalar	*Visual	NONE		NONE	NONE	
	S	ilt	scalar	*Visual	NONE		NONE	NONE	
	D	ebris	scalar	*Visual	NONE		NONE	NONE	
	S	and/Dirt	scalar	*Visual	NONE		NONE	NONE	
May29/24	A	ppearance	scalar	*Visual	NORML	-	NORML	NORML	
May	0	dor	scalar	*Visual	NORML	-	NORML	NORML	
	E	mulsified Water	scalar	*Visual	>0.2		NEG	NEG	
	F	ree Water	scalar	*Visual			NEG	NEG	
		FLUID PROPE	RTIES	method	limit/ba	ase	current	history1	history2
	V	isc @ 100°C	cSt	ASTM D445	12.00		11.3	11.7	
		GRAPHS							
	150 <del>-</del>	Iron (ppm)				80	Lead (ppm)		
		Severe					Severe		
с о <i>с.</i> – н	_ 100	Abnormal				60			*****
4 H	bbw					۲ <u>ط</u> 40	Abnormal		
	50-					20	-		
	0					0	L <u>.</u>		
		Jan 25/22			May29/24		Jan 25/22		
		,			May		-		:
	60 <del>.</del>	Aluminum (ppm)				12	Chromium (p	pm)	
	50	Severe				10	Severe		
	40					8			
1 C. D.	퉙 30 -	Abnormal				Mdd 6	Abnormal		
о <i>с</i> н	20 10					4	•		
-	0 <sup>10</sup>					0			
		Jan 25/22			May29/24		Jan 25/22		
		Jan			May		Jan		:
		Copper (ppm)				40	Silicon (ppm)		
	300 250	Severe				40	Severe		
	200					30			
	툡 150 -	Abnormal			-	L 20	Abnormal		
	100 50					10			
	0					0			
		Jan 25/22			May29/24		Jan 25/22		
		Jan2			May2		Jan2		
		Viscosity @ 100°C					Base Number		
	<sup>16</sup>	1				10.0- ∰			
	<sup>14</sup>	Abnormal				0.8 Base Number (mg KOH/g)	1		
	cSt (100°C)	Base				10 6.0			
	3 10-	Abnormal				2.04			
	8					0.0			
	0	Jan 25/22 -			May29/24 -	2.9	Jan 25/22 -		
									2

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