

OIL ANALYSIS REPORT



Machine Id **721529** Component **Diesel Engine** Fluid **PETRO CANADA DURON SHP 10W30 (--- 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.

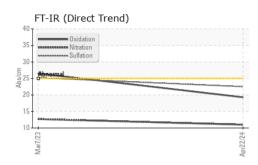
Fluid Condition

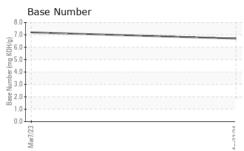
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

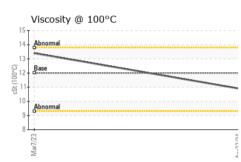
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0110705	PCA0083876	
Sample Date		Client Info		22 Apr 2024	07 Mar 2023	
Machine Age	mls	Client Info		250917	129284	
Oil Age	mls	Client Info		49158	52355	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	
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	>100	54	13	
Chromium	ppm	ASTM D5185m	>20	3	<1	
Nickel	ppm		>4	۲ ۲	0	
Titanium	ppm	ASTM D5185m		<1	<1	
Silver	ppm	ASTM D5185m	>3	<1	0	
Aluminum	ppm	ASTM D5185m	>20	7	5	
Lead	ppm	ASTM D5185m	>40	<1	0	
Copper	ppm	ASTM D5185m	>330	35	13	
Tin	ppm	ASTM D5185m	>15	<1	0	
Vanadium	ppm	ASTM D5185m		0	<1	
Cadmium	ppm	ASTM D5185m		0	0	
				0	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron			limit/base	current	history1	history2
	ppm	method		-	-	
Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	2	current	history1 5	
Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	current 1 0	history1 5 0	
Boron Barium	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	2 0	current 1 0 67	history1 5 0 14	
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	current 1 0 67 <1	history1 5 0 14 1	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	current 1 0 67 <1 992	history1 5 0 14 1 163	
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 1 0 67 <1 992 1177	history1 5 0 14 1 163 532	
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 0 950 1050 995	current 1 0 67 <1 992 1177 1008	history1 5 0 14 1 163 532 227	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180	current 1 0 67 <1 992 1177 1008 1330	history1 5 0 14 1 163 532 227 267	
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	2 0 50 950 1050 995 1180 2600	current 1 0 67 <1 992 1177 1008 1330 2711	history1 5 0 14 1 163 532 227 267 342	
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 1 0 67 <1 992 1177 1008 1330 2711 current	history1 5 0 14 1 163 532 227 267 342 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25	current 1 0 67 <1 992 1177 1008 1330 2711 current 12	history1 5 0 14 1 163 532 227 267 342 history1 5	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25	current 1 0 67 <1 992 1177 1008 1330 2711 current 12 <1 13 current	history1 5 0 14 1 532 227 267 342 history1 5 1	 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 ppm	method ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25	current 1 0 67 <1 992 1177 1008 1330 2711 current 12 <1 13 current 12 <1 13 current 1.2	history1 5 0 14 1 532 227 267 342 history1 5 1 8 history1 1.1	 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 limit/base >25 -20 limit/base	current 1 0 67 <1 992 1177 1008 1330 2711 current 12 <1 13 current 12 <1 13 current 1.2 1.1.2 11.0	history1 5 0 14 1 532 227 267 342 history1 5 1 5 1 5 1 8 history1 1.1 12.7	 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 ppm	method ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	current 1 0 67 <1 992 1177 1008 1330 2711 current 12 <1 13 current 12 <1 13 current 1.2	history1 5 0 14 1 532 227 267 342 history1 5 1 8 history1 1.1	 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 ASTM D5185m	2 0 50 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	current 1 0 67 <1 992 1177 1008 1330 2711 current 12 <1 13 current 12 <1 13 current 1.2 1.1.2 11.0	history1 5 0 14 1 532 227 267 342 history1 5 1 5 1 5 1 8 history1 1.1 12.7	 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 50 950 1050 995 1180 2600 imit/base >25 imit/base >3 >20	current 1 0 67 <1 992 1177 1008 1330 2711 current 12 <1 13 current 1.2 11.0 22.5	history1 5 0 14 1 532 227 267 342 history1 5 1 8 history1 1.1 12.7 25.2	 history2 history2 history2



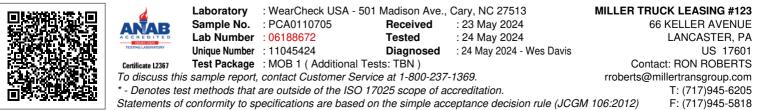
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		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.00	10.9	13.4	
GRAPHS						
Iron (ppm)			100	Lead (ppm)		
Severe			100	Severe		
				- 0		
Abnormal			60 탄 40	Abnormal		
)+			40			
			20	Ī		
				Mar7/23		
Mar7/23			Apr22/24	Mar		
Aluminum (ppm)				Chromium (p	pm)	
T , T , T , T ,			50	Τ;		
) - Severe			40	Severe		
)			³⁰			
Abnormal			² 20	Abnormal		
)-			10	•		
Mar7/23			Apr22/24	Mar7/23		
Copper (ppm)				Silicon (ppm)		
Copper (ppm)			Apr22/24	Silicon (ppm)		
Copper (ppm)			09 Apr22/24	Silicon (ppm)		
Copper (ppm)			Apr22/24	Silicon (ppm)		
Copper (ppm)			09 Apr22/24	Silicon (ppm)		
Copper (ppm)			4272721d¥ 60 <u>⊑</u> 40 20	Silicon (ppm)		
Copper (ppm)			4272721d¥ 60 <u>⊑</u> 40 20	Silicon (ppm)		
Copper (ppm)			42727214 60 60 20	Silicon (ppm)		
Copper (ppm)			400 200 400 200 400 200 400 200 400 200 400 200 800 800 800 800 800 800 800 800 8	Silicon (ppm)		
Copper (ppm)			400 200 400 200 400 200 400 200 400 200 400 200 800 800 800 800 800 800 800 800 8	Silicon (ppm)		
Copper (ppm)			400 200 400 200 400 200 400 200 400 200 400 200 800 800 800 800 800 800 800 800 8	Silicon (ppm)		
Copper (ppm)			400 200 400 200 400 200 400 200 400 200 400 200 800 800 800 800 800 800 800 800 8	Silicon (ppm)		
Copper (ppm)			400 200 400 200 400 200 400 200 400 200 400 200 800 800 800 800 800 800 800 800 8	Silicon (ppm)		
Copper (ppm)			40 40 40 40 40 40 40 40 40 40 40 40 40 4	Silicon (ppm)		
Copper (ppm)			400 200 400 200 400 200 400 200 400 200 400 200 800 800 800 800 800 800 800 800 8	Silicon (ppm)		



Contact/Location: RON ROBERTS - MILLAN