

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id **125276** Component **Diesel Engine** Fluid

PETRO CANADA DURON SHP 10W30 (--- QTS)

### DIAGNOSIS

#### Recommendation

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

#### Wear

Metal levels are typical for a new component breaking in.

#### Contamination

There is no indication of any contamination in the oil.

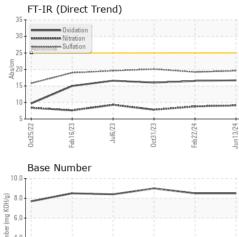
#### Fluid Condition

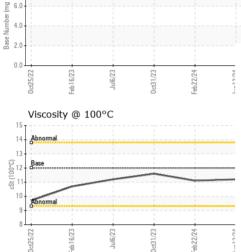
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMIFLE INFUNI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0128860	PCA0118899	PCA0110474
Sample Date		Client Info		13 Jun 2024	22 Feb 2024	31 Oct 2023
Machine Age	mls	Client Info		26189	21558	17143
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron		ASTM D5185m	>100	27	34	22
Chromium	ppm	ASTM D5185m	>100	0	34 <1	<1
Nickel	ppm		>20	0	0	<1
Titanium	ppm	ASTM D5185m ASTM D5185m	>4	0	0	<1
Silver	ppm	ASTM D5185m	>3	-	0	<1
Aluminum	ppm ppm		>3	0 8	6	4
Lead		ASTM D5185m	>20	-	<1	4
	ppm	ASTM D5185m		<1 3	<1	25
Copper Tin	ppm	ASTM D5185m	>330		0 <1	25
Vanadium	ppm	ASTM D5185m	>10	1 0	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	<1
	ppm	ASTIVI DJ TOJIII		U	0	< 1
ADDITIVES		method				history2
Boron	ppm	ASTM D5185m	2	4	3	2
Barium	ppm ppm		2 0	4 0	3 0	2 <1
		ASTM D5185m ASTM D5185m	0 50		0 60	<1 63
Barium Molybdenum Manganese	ppm	ASTM D5185m	0 50 0	0	0 60 <1	<1 63 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950	0 65 <1 1016	0 60 <1 898	<1 63 <1 962
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050	0 65 <1 1016 1128	0 60 <1 898 1080	<1 63 <1 962 1093
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995	0 65 <1 1016 1128 1177	0 60 <1 898 1080 932	<1 63 <1 962 1093 1056
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180	0 65 <1 1016 1128	0 60 <1 898 1080 932 1106	<1 63 <1 962 1093 1056 1258
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	0 50 0 950 1050 995 1180 2600	0 65 <1 1016 1128 1177	0 60 <1 898 1080 932 1106 3242	<1 63 <1 962 1093 1056 1258 3148
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	0 50 0 950 1050 995 1180	0 65 <1 1016 1128 1177 1363	0 60 <1 898 1080 932 1106 3242 history1	<1 63 <1 962 1093 1056 1258 3148 history2
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	0 50 0 950 1050 995 1180 2600	0 65 <1 1016 1128 1177 1363 3748	0 60 <1 898 1080 932 1106 3242 history1 5	<1 63 <1 962 1093 1056 1258 3148 <b>history2</b> 7
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	0 50 0 950 1050 995 1180 2600	0 65 <1 1016 1128 1177 1363 3748 current	0 60 <1 898 1080 932 1106 3242 history1	<1 63 <1 962 1093 1056 1258 3148 history2
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	0 50 0 950 1050 995 1180 2600 Limit/base >25	0 65 <1 1016 1128 1177 1363 3748 current 6	0 60 <1 898 1080 932 1106 3242 history1 5	<1 63 <1 962 1093 1056 1258 3148 <b>history2</b> 7
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600 Limit/base >25	0 65 <1 1016 1128 1177 1363 3748 current 6 2	0 60 <1 898 1080 932 1106 3242 history1 5 3 0 history1	<1 63 <1 962 1093 1056 1258 3148 history2 7 0 2 history2
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	ASTM D5185m ASTM D5185m	0 50 950 1050 995 1180 2600 <b>limit/base</b> >25 >20	0 65 <1 1016 1128 1177 1363 3748 current 6 2 3 3 current 0.5	0 60 <1 898 1080 932 1106 3242 history1 5 3 0 0 history1 0.4	<1 63 <1 962 1093 1056 1258 3148 history2 7 0 2 2 history2 0.4
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600 <i>limit/base</i> >25 >20	0 65 <1 1016 1128 1177 1363 3748 current 6 2 3 3 current	0 60 <1 898 1080 932 1106 3242 history1 5 3 0 history1	<1 63 <1 962 1093 1056 1258 3148 history2 7 0 2 kistory2
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	ASTM D5185m ASTM D5185m	0 50 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >3	0 65 <1 1016 1128 1177 1363 3748 current 6 2 3 3 current 0.5	0 60 <1 898 1080 932 1106 3242 history1 5 3 0 0 history1 0.4	<1 63 <1 962 1093 1056 1258 3148 history2 7 0 2 2 history2 0.4
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 50 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	0 65 <1 1016 1128 1177 1363 3748 <u>current</u> 6 2 3 3 <u>current</u> 0.5 9.1	0 60 <1 898 1080 932 1106 3242 history1 5 3 0 0 history1 0.4 8.8	<1 63 <1 962 1093 1056 1258 3148 history2 7 0 2 2 history2 0.4 7.8
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 50 950 1050 995 1180 2600 <b>limit/base</b> >25 	0 65 <1 1016 1128 1177 1363 3748 <u>current</u> 6 2 3 3 <u>current</u> 0.5 9.1 19.6	0 60 <1 898 1080 932 1106 3242 history1 5 3 0 history1 0.4 8.8 19.2	<1 63 <1 962 1093 1056 1258 3148 history2 7 0 2 <u>history2</u> 0.4 7.8 20.1



# **OIL ANALYSIS REPORT**





Metal v Metal bitate s /Dirt arance sified Water Water JID PROPE @ 100°C APHS (ppm) mal	cSt	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual ASTM D445	NONE NONE NONE NONE NORML >0.2 12.00	Abnormal Abnormal Classifier Constraints Chromium	11.1 ) EZZIGINF	E E E E E E E E E E E E E E E E E E E	NONE NONE NONE NONE NORM NORM NEG histor 11.6	IL IL
bitate s Dirt arance sified Water Water JID PROPE @ 100°C APHS (ppm) a mal	scalar scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual <b>method</b> ASTM D445	NONE NONE NONE NORML >0.2 limit/base 12.00	NONE NONE NONE NORML NORML NEG NEG Lead (ppm	NON NON NON NOR NEG NEG 11.1	E E E ML ML ory1	NONE NONE NONE NORM NEG histor 11.6	IL IL ry2
s Dirt arance sified Water Water JID PROPE 2 100°C APHS (ppm) a mal	scalar scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual <b>method</b> ASTM D445	NONE NONE NORML NORML >0.2 limit/base 12.00	NONE NONE NORML NORML NEG NEG Lead (ppm	NON NON NOR NEG NEG 11.1	E E E ML ON THE STREEM	NONE NONE NORM NORM NEG histor 11.6	IL IL ry2
s Dirt arance sified Water Water JID PROPE 2 100°C APHS (ppm) a mal	scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual <b>method</b> ASTM D445	NONE NORML NORML >0.2 limit/base 12.00	NONE NORML NORML NEG NEG Lead (ppm	NON NOR NOR NEG NEG 11.1	E ML ML ory1	NONE NORM NORM NEG NEG histor 11.6	IL IL ry2
Dirt arance sified Water Water JID PROPE @ 100°C APHS 0 (ppm) mal	scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual <b>method</b> ASTM D445	NONE NORML NORML >0.2 limit/base 12.00	NONE NORML NORML NEG NEG Lead (ppm	NON NOR NOR NEG NEG 11.1	E ML ML ory1	NONE NORM NORM NEG NEG histor 11.6	IL IL ry2
Dirt arance sified Water Water JID PROPE @ 100°C APHS 0 (ppm) mal	scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual method ASTM D445	NONE NORML NORML >0.2 limit/base 12.00	NONE NORML NEG NEG Current 11.2	NON NOR NEG NEG 11.1	E ML ML ory1	NONE NORM NEG NEG histor 11.6	IL IL ry2
arance sified Water Water JID PROPE 200°C APHS 0 (ppm)	scalar scalar scalar scalar scalar CSt	*Visual *Visual *Visual *Visual method ASTM D445	NORML NORML >0.2 limit/base 12.00 10 8 6 4 2 5	NORML NEG NEG Current 11.2	NOR NEG NEG 11.1	ML ML	NORM NORM NEG histor 11.6	IL IL ry2
sified Water Water JID PROPE 2 100°C APHS (ppm) a mal Signation (ppm) a mal	scalar scalar scalar ERTIES cSt	*Visual *Visual *Visual Method ASTM D445	NORML >0.2 limit/base 12.00	NORML NEG NEG Lead (ppm	NOR NEG NEG 11.1	ML ory1	NORM NEG histor 11.6	ry2
Water JID PROPE 2 100°C APHS (ppm) a mal toppm) a mal	scalar scalar ERTIES cSt	*Visual *Visual method ASTM D445	>0.2 limit/base 12.00	NEG NEG current 11.2 Lead (ppm	NEG NEG 11.1	ory1	NEG NEG histor 11.6	ry2
Water JID PROPE 2 100°C APHS (ppm) a mal toppm) a mal	scalar ERTIES cSt	*Visual method ASTM D445	limit/base 12.00	NEG current 11.2 Lead (ppm	NEG hist 11.1		NEG histor 11.6	
JID PROPE	ERTIES cSt	method ASTM D445	12.00	Current 11.2 Lead (ppm	hist 11.1 )		histor 11.6	
2 100°C APHS (ppm) a mal	cSt	ASTM D445	12.00	Lead (ppm	11.1 ) EZZIGINF		11.6	
APHS (ppm) a mal	Jul6/23 + 0cm		10 8 6 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Lead (ppm	Julis.23	0ct31/23		
ninum (ppm)	0	Feb22/24	4 4 4 4 7 2 4 7 2 5	Abnomal Chromium	Jul6/23	0ct31/23	Feb22/24	
mai F F F F F F F F F F F F F	0	Feb22/24	4 4 4 4 7 2 4 7 2 5	Abnomal Chromium	Jul6/23	0et31/23	Feb22/24 +	
mal 	0	Feb22/24	4 4 4 4 7 2 4 7 2 1 4 7 2 1 1 1 7 5	Abnormal CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		0ct31/23	Feb22/24 -	
Hep (853 hinum (ppm)	0	Feb22/24	4 4 4 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Abnormal Chromium		0ct31/23	Feb22/24	
Hep (853 hinum (ppm)	0	Feb22/24 -	τ t t t t t t t t t t t t t t t t t t t	Chromium		0ct31/23	Feb22/24	
ninum (ppm)	0	Feb22/24 +	Jun13/24	Chromium		0ct31/23	Feb22/24	_
ninum (ppm)	0	Feb22/24 +		0ct25/22 Cpt2016/23		0ct31/23	Feb22/24	
ninum (ppm)	0	Feb.22/	5	Chromium		0ct31/	Feb22/	
ninum (ppm)		ت 	5	Chromium	(ppm)	0	LË.	
					(PP)			
8			4				·	
				0 - Severe				
			<sup>3</sup> _2	0 -				
rmal			- 2	0 - Abnormal				
				0				
23	23 - 23	24	24	23 22 0	23	23	24	
Feb 16/23	Jul6/23 0ct31/23	Feb22/24	Jun13/24	0ct25/22 Feb16/23	Jul6/23	0ct31/23	Feb22/24	
per (ppm)		-	~	Silicon (ppr	m)		_	
e Imal	+		8	OT Severe				
	+		6	0				
	1		<u>ل</u> 4					
	~		2	Abnorma				
$\checkmark$								
23+	23+	24		3 22	23	23 -	24 +	
eb16/	Jul6/	eb 22/	n13/	ct25/	Jul6/	ct31/	eb22/	
ű.	0	Ľ.		Dees North		0	LL.	
osity @ 100°								
mal		1	KOH/	0				
			Ĕ 6.	0 -				
				0 -				
imal	+		a 2.	0 -				
	Jul6/2 ±31/2.	622/2	n13/2	:t25/2	Jul6/2	:1/2	b22/2	
		- 63		Fel Oc		ŏ	<u>a</u>	-
	cosity @ 100°	cosity @ 100°C	cosity @ 100°C	cosity @ 100°C	cosity @ 100°C Base Numb	cosity @ 100°C Base Number	cosity @ 100°C Base Number	cosity @ 100°C mal

Unique Number : 11089503 Diagnosed : 24 Jun 2024 - Wes Davis Test Package : MOB 1 (Additional Tests: TBN) Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

HASBROUCK HEIGHTS, NJ US 07604 Contact: MIKE LONGETTE mlongette@millertransgroup.com

T: F: (201)528-7053

Report Id: MILRUT [WUSCAR] 06216639 (Generated: 06/24/2024 08:34:17) Rev: 1

Contact/Location: MIKE LONGETTE - MILRUT

Page 2 of 2