

# **OIL ANALYSIS REPORT**

Sample Rating Trend



#### Machine Id

## **Thomas 1299**

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (18 QTS)

## DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### 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 INFORM	<b>IATION</b>	method				history2
Sample Number		Client Info		PCA0091581	PCA0071437	PCA0045573
Sample Date		Client Info		04 Jan 2024	16 Feb 2023	25 Jan 2022
Machine Age	mls	Client Info		226750	217174	208871
Oil Age	mls	Client Info		9576	8303	7012
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
			11 11 11			
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METALS	3	method	limit/base	current	history1	history2
Iron	nnm	ASTM D5185m	<u>\130</u>	37	42	30
Chromium	nnm	ASTM D5185m	>10	1	1	<1
Nickel	nnm	ASTM D5185m	<u>&gt;10</u>	0	0	1
Titanium	nnm	ASTM D5185m	>2	۰ د1	<1	0
Silver	nnm	ASTM D5185m	>2	0	0	0
Aluminum	nnm	ASTM D5185m	>20	4	6	4
Lead	nnm	ASTM D5185m	>20	-1	0	~1
Conner	nnm	ASTM D5185m	>125	2	1	3
Tin	nnm	ASTM D5185m	<u>_</u> 4	0	-1	_1
Antimony	nnm	ASTM D5185m	~7			
Vanadium	nnm	ASTM D5185m			<1	0
Cadmium	nnm	ASTM D5185m		0	0	0
Cualificant				•	0	0
			11 11 11			
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 2	current <1	history1 0	history2 3
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 2 0	current <1 0	history1 0 0	history2 3 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 2 0 50	current <1 0 63	history1 0 0 59	history2 3 0 61
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 2 0 50 0	current <1 0 63 <1	history1 0 0 59 1	history2 3 0 61 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 2 0 50 0 950	current <1 0 63 <1 962	history1 0 0 59 1 884	history2 3 0 61 <1 1002
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 2 0 50 0 950 1050	current <1 0 63 <1 962 1179	history1 0 0 59 1 884 1040	history2 3 0 61 <1 1002 1128
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 2 50 0 950 1050 995	current <1 0 63 <1 962 1179 1015	history1 0 59 1 884 1040 883	history2 3 0 61 <1 1002 1128 987
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 2 50 0 950 1050 995 1180	current <1 0 63 <1 962 1179 1015 1275	history1 0 59 1 884 1040 883 1151	history2 3 0 61 <1 1002 1128 987 1219
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 2 0 50 0 950 1050 995 1180 2600	current           <1           0           63           <1           962           1179           1015           1275           3455	history1           0           59           1           884           1040           883           1151           3005	history2 3 0 61 <1 1002 1128 987 1219 2686
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 2 0 50 0 950 1050 995 1180 2600	current         <1         0         63         <1         962         1179         1015         1275         3455	history1         0         59         1         884         1040         883         1151         3005         history1	history2           3           0           61           <1           1002           1128           987           1219           2686           history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN <sup>T</sup> Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 2 50 0 950 1050 995 1180 2600 limit/base >25	current <1 0 63 <1 962 1179 1015 1275 3455 current 4	history1         0         59         1         884         1040         883         1151         3005         history1         4	history2           3           0           61           <1           1002           1128           987           1219           2686           history2           3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur CONTAMINAN <sup>T</sup> Silicon Sodium	ppm	method           ASTM D5185m	limit/base 2 0 50 0 950 1050 995 1180 2600 limit/base >25	current         <1         0         63         <1         962         1179         1015         1275         3455         current         4         30	history1         0         0         59         1         884         1040         883         1151         3005         history1         4         52	history2           3           0           61           <1           1002           1128           987           1219           2686           history2           3           58
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN <sup>T</sup> Silicon Sodium Potassium	ppm	method           ASTM D5185m	limit/base 2 0 50 0 950 1050 995 1180 2600 Limit/base >25	<1         0         63         <1         962         1179         1015         1275         3455         current         4         30         62	history1           0           0           59           1           884           1040           883           1151           3005           history1           4           52           72	history2           3           0           61           <1           1002           1128           987           1219           2686           history2           3           58           17
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm	method           ASTM D5185m	limit/base 2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20	<1         0         63         <1         962         1179         1015         1275         3455         current         4         30         62         NEG	history1         0         59         1         884         1040         883         1151         3005         history1         4         52         72         0.0	history2           3           0           61           <1           1002           1128           987           1219           2686           history2           3           58           17           NEG
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm %	method           ASTM D5185m	limit/base 2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base	current         <1         0         63         <1         962         1179         1015         1275         3455         current         4         30         62         NEG	history1         0         0         59         1         884         1040         883         1151         3005         history1         4         52         72         0.0	history2         3         0         61         <1         1002         1128         987         1219         2686         history2         3         58         17         NEG
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN <sup>T</sup> Silicon Sodium Potassium Glycol INFRA-RED	ppm	method           ASTM D5185m           ASTM D29821           method	limit/base 2 0 50 0 950 1050 995 1180 2600 limit/base >20 limit/base	<1         0         63         <1         962         1179         1015         1275         3455         current         4         30         62         NEG	history1         0         0         59         1         884         1040         883         1151         3005         history1         4         52         72         0.0         history1	history2         3         0         61         <1         1002         1128         987         1219         2686         history2         3         58         17         NEG         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D2982           method           *ASTM D7844	limit/base 2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >20	<1         0         63         <1         962         1179         1015         1275         3455         current         4         30         62         NEG         0.6         1221	history1         0         59         1         884         1040         883         1151         3005         history1         4         52         72         0.0         history1         0.5         11.2	history2         3         0         61         <1         1002         1128         987         1219         2686         history2         3         58         17         NEG         history2         0.5         11 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >6 >20	<1         0         63         <1         962         1179         1015         1275         3455         current         4         30         62         NEG         0.6         12.1         24.7	history1         0         59         1         884         1040         883         1151         3005         history1         4         52         72         0.0         history1         0.5         11.2	history2         3         0         61         <1         1002         1128         987         1219         2686         history2         3         58         17         NEG         history2         0.5         11.9         22.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 2 0 50 0 950 1050 995 1180 2600 limit/base >25 limit/base >6 >20 >30	<1         0         63         <1         962         1179         1015         1275         3455         current         4         30         62         NEG         0.6         12.1         24.7	history1         0         59         1         884         1040         883         1151         3005         history1         4         52         72         0.0         history1         0.5         11.2         23.2	history2         3         0         61         <1         1002         1128         987         1219         2686         history2         3         58         17         NEG         history2         0.5         11.9         23.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415 Method	limit/base 2 0 50 0 950 1050 995 1180 2600 limit/base >20 limit/base >6 >20 >30	<1         0         63         <1         962         1179         1015         1275         3455         current         4         30         62         NEG         0.6         12.1         24.7	history1         0         59         1         884         1040         883         1151         3005         history1         4         52         72         0.0         history1         0.5         11.2         23.2         history1	history2         3         0         61         <1         1002         1128         987         1219         2686         history2         3         58         17         NEG         history2         0.5         11.9         23.2         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D7842           *ASTM D7415           method           *ASTM D7414	limit/base   2   0   50   0   950   1050   995   1180   2600   limit/base   >20   limit/base   >20   se6   >20   limit/base   >30   limit/base   >25	<1         0         63         <1         962         1179         1015         1275         3455         current         4         30         62         NEG         current         0.6         12.1         24.7         current	history1         0         59         1         884         1040         883         1151         3005         history1         4         52         72         0.0         history1         0.5         11.2         23.2         history1         22.6	history2         3         0         61         <1         1002         1128         987         1219         2686         history2         3         58         17         NEG         history2         0.5         11.9         23.2         history2         21.5

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# **OIL ANALYSIS REPORT**

Non-ferrous Metals







VISUAL		method	limit/base	current	history1	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	12.00	10.9	10.1	11.1
GRAPHS						
Ferrous Alloys						
90						
70 - newspace chromium						
60						
50						
40	-					
30						
10						
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5/22 -	6/23	4/24			



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 ICSB390 - O'Fallon 149 Saint Ellen Street Sample No. : PCA0091581 Received : 20 Jun 2024 Lab Number : 06215331 Tested : 21 Jun 2024 O`Fallon, IL Unique Number : 11088195 Diagnosed : 21 Jun 2024 - Sean Felton US 62269-1635 Test Package : FLEET ( Additional Tests: Glycol ) Contact: Mike Massey Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. m.massey@illinois-central.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (618)632-3399 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Submitted By: Chad Ingold

Jan4/24