

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

BM-58

Component Diesel Engine Fluid

PETRO CANADA DURON SHP 10W30 (10 GAL)

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.

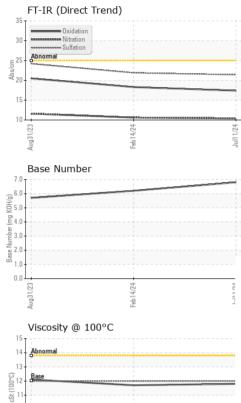
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0122168	PCA0110802	PCA0103139
Sample Date		Client Info		11 Jul 2024	14 Feb 2024	31 Aug 2023
Machine Age	mls	Client Info		271565	256731	238571
Oil Age	mls	Client Info		14834	18160	22346
Oil Changed		Client 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	ppm	ASTM D5185m	>100	20	17	31
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	5	4	6
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	2	1	3
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current	history1 3	history2 <1
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	2	1	3	<1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0 50	1 <1	3 0	<1 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	1 <1 69	3 0 61	<1 0 66
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	1 <1 69 0	3 0 61 <1	<1 0 66 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	1 <1 69 0 991	3 0 61 <1 952	<1 0 66 <1 1034
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	1 <1 69 0 991 1214	3 0 61 <1 952 1054	<1 0 66 <1 1034 1158
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	2 0 50 950 1050 995	1 <1 69 0 991 1214 1005	3 0 61 <1 952 1054 1040	<1 0 66 <1 1034 1158 1069
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	2 0 50 0 950 1050 995 1180	1 <1 69 0 991 1214 1005 1313	3 0 61 <1 952 1054 1040 1257	<1 0 66 <1 1034 1158 1069 1332
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	2 0 50 950 1050 995 1180 2600	1 <1 69 0 991 1214 1005 1313 2728	3 0 61 <1 952 1054 1040 1257 2619	<1 0 66 <1 1034 1158 1069 1332 2657
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	2 0 50 950 1050 995 1180 2600	1 <1 69 0 991 1214 1005 1313 2728 current	3 0 61 <1 952 1054 1040 1257 2619 history1	<1 0 66 <1 1034 1158 1069 1332 2657 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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	2 0 50 950 1050 995 1180 2600 limit/base >25	1 <1 69 0 991 1214 1005 1313 2728 current 11	3 0 61 <1 952 1054 1054 1040 1257 2619 history1 10	<1 0 66 <1 1034 1158 1069 1332 2657 history2 9
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	2 0 50 950 1050 995 1180 2600 limit/base >25	1 <1 69 0 991 1214 1005 1313 2728 <u>current</u> 11 0	3 0 61 <1 952 1054 1040 1257 2619 history1 10 1	<1 0 66 <1 1034 1158 1069 1332 2657 history2 9 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	2 0 50 950 1050 995 1180 2600 limit/base >25 >20	1 <1 69 0 991 1214 1005 1313 2728 <u>current</u> 11 0 7	3 0 61 <1 952 1054 1040 1257 2619 history1 10 1 2	<1 0 66 <1 1034 1158 1069 1332 2657 history2 9 1 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 Imit/base >25 >20 Imit/base >3	1 <1 69 0 991 1214 1005 1313 2728 current 11 0 7	3 0 61 <1 952 1054 1040 1257 2619 history1 10 1 2 2 history1	<1 0 66 <1 1034 1158 1069 1332 2657 history2 9 1 3 3 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 Imit/base >25 >20 Imit/base >3	1 <1 69 0 991 1214 1005 1313 2728 current 11 0 7 current 0.6	3 0 61 <1 952 1054 1040 1257 2619 history1 10 1 2 2 history1 0.7	<1 0 66 <1 1034 1158 1069 1332 2657 history2 9 1 3 history2 1
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	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <i>imit/base</i> >25 >20 <i>imit/base</i> >3 >20	1 <1 69 0 991 1214 1005 1313 2728 current 11 0 7 current 0.6 10.4	3 0 61 <1 952 1054 1040 1257 2619 history1 10 1 2 history1 0.7 10.6	<1 0 66 <1 1034 1158 1069 1332 2657 history2 9 1 3 history2 1 1 11.6
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 ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 imit/base >25 imit/base >3 >20	1 <1 69 0 991 1214 1005 1313 2728 current 11 0 7 current 0.6 10.4 21.4	3 0 61 <1 952 1054 1040 1257 2619 history1 10 1 2 <u>history1</u> 0.7 10.6 21.9	<1 0 66 <1 1034 1158 1069 1332 2657 history2 9 1 3 history2 1 1 11.6 24.2
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	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	2 0 50 0 950 1050 995 1180 2600 imit/base >25 >20 imit/base >3 >20 >30	1 <1 69 0 991 1214 1005 1313 2728 current 11 0 7 current 0.6 10.4 21.4 current	3 0 61 <1 952 1054 1040 1257 2619 history1 10 1 2 history1 0.7 10.6 21.9 history1	<1 0 66 <1 1034 1158 1069 1332 2657 history2 9 1 3 history2 1 11.6 24.2 history2



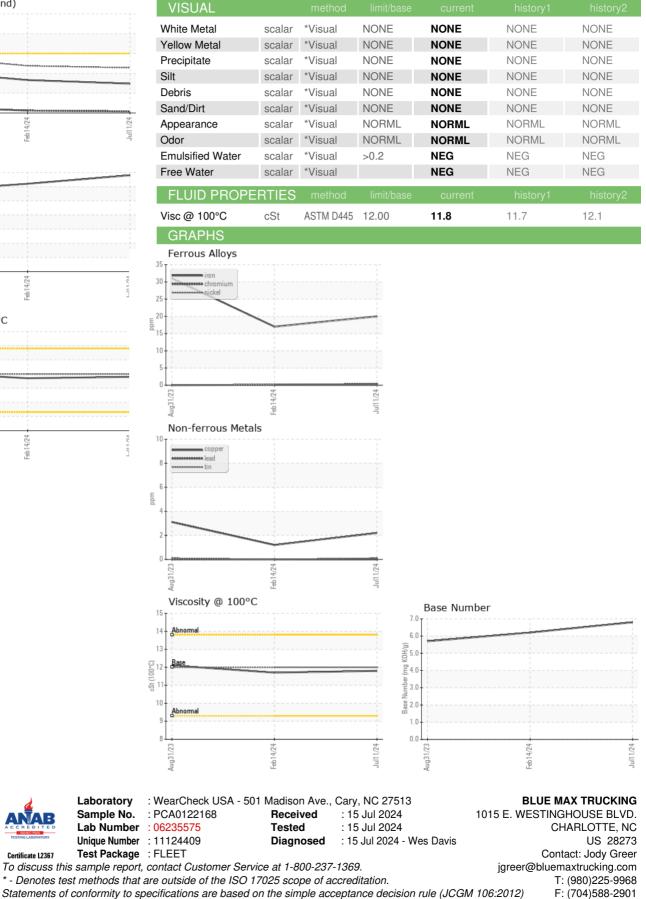
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Aug31/23

OIL ANALYSIS REPORT



Feb14/24



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Submitted By: Jody Greer