

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 8526

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (--- 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

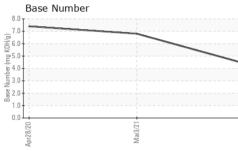
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

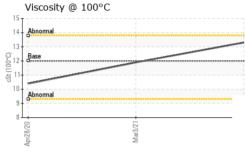
Apr2020 Mw2021 Swp2023										
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2				
Sample Number		Client Info		PCA0088613	PCA0045202	PCA0009933				
Sample Date		Client Info		18 Sep 2023	03 Mar 2021	28 Apr 2020				
Machine Age	mls	Client Info		427189	141988	30443				
Oil Age	mls	Client Info		427189	24062	30443				
Oil Changed		Client Info		Changed	Changed	Changed				
Sample Status				NORMAL	NORMAL	ABNORMAL				
CONTAMINAT	ION	method	limit/base	current	history1	history2				
Fuel		WC Method	>5	<1.0	<1.0	<1.0				
Glycol		WC Method		NEG	NEG	0.0				
WEAR METAL	S	method	limit/base	current	history1	history2				
Iron	ppm	ASTM D5185m	>100	31	21	52				
Chromium	ppm	ASTM D5185m	>20	<1	2	8				
Nickel	ppm	ASTM D5185m	>4	0	<1	1				
Titanium	ppm	ASTM D5185m		0	0	<1				
Silver	ppm	ASTM D5185m	>3	0	<1	<1				
Aluminum	ppm	ASTM D5185m	>20	9	10	28				
Lead	ppm	ASTM D5185m	>40	0	<1	<1				
Copper	ppm	ASTM D5185m	>330	9	31	4 11				
Tin	ppm		>15	<1	1	3				
Antimony	ppm	ASTM D5185m			0	0				
Vanadium	ppm	ASTM D5185m		0	0	0				
Cadmium	ppm	ASTM D5185m		0	0	0				
ADDITIVES		method	limit/base	current		history2				
ADDITIVES	nnm	method ASTM D5185m			history1	history2				
Boron	ppm	ASTM D5185m	2	14	history1 3	44				
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	14 0	history1 3 0	44 0				
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	14 0 29	history1 3 0 63	44 0 14				
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	14 0 29 <1	history1 3 0 63 <1	44 0 14 3				
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	14 0 29 <1 562	history1 3 0 63 <1 937	44 0 14 3 747				
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	14 0 29 <1 562 1836	history1 3 0 63 <1 937 1111	44 0 14 3 747 1472				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 9 950 1050 995	14 0 29 <1 562 1836 926	history1 3 0 63 <1 937 1111 975	44 0 14 3 747 1472 760				
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	14 0 29 <1 562 1836	history1 3 0 63 <1 937 1111	44 0 14 3 747 1472				
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	2 0 50 0 950 1050 995 1180	14 0 29 <1 562 1836 926 1024	history1 3 0 63 <1 937 1111 975 1229	44 0 14 3 747 1472 760 845				
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	14 0 29 <1 562 1836 926 1024 3010 current	history1 3 0 63 <1 937 1111 975 1229 2426 history1	44 0 14 3 747 1472 760 845 2233 history2				
Boron 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 ASTM D5185m	2 0 50 950 1050 995 1180 2600	14 0 29 <1 562 1836 926 1024 3010 current 5	history1 3 0 63 <1 937 1111 975 1229 2426 history1 4	44 0 14 3 747 1472 760 845 2233 history2 8				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	2 0 50 950 1050 995 1180 2600	14 0 29 <1 562 1836 926 1024 3010 current	history1 3 0 63 <1 937 1111 975 1229 2426 history1	44 0 14 3 747 1472 760 845 2233 history2				
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	14 0 29 <1 562 1836 926 1024 3010 current 5 4 6	history1 3 0 63 <1 937 1111 975 1229 2426 history1 4 2 23	44 0 14 3 747 1472 760 845 2233 history2 8 6 6 73				
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 0 950 1050 995 1180 2600 limit/base >25 -20 limit/base	14 0 29 <1 562 1836 926 1024 3010 current 5 4 6 current	history1 3 0 63 <1 937 1111 975 1229 2426 history1 4 2 23 history1	44 0 14 3 747 1472 760 845 2233 history2 8 6 6 73				
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 limit/base >25 >20 limit/base	14 0 29 <1 562 1836 926 1024 3010 current 5 4 6 current 1.2	history1 3 0 63 <1 937 1111 975 1229 2426 history1 4 2 23 history1 0.5	44 0 14 3 747 1472 760 845 2233 history2 8 6 4 73 history2 0.3				
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 TS 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	14 0 29 <1 562 1836 926 1024 3010 current 5 4 6 current 1.2 1.2 13.1	history1 3 0 63 <1 937 1111 975 1229 2426 history1 4 2 23 history1 0.5 10.1	44 0 14 3 747 1472 760 845 2233 history2 8 6 6 73 history2 0.3 10.4				
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	14 0 29 <1 562 1836 926 1024 3010 current 5 4 6 current 1.2 1.2 13.1 29.6	history1 3 0 63 <1 937 1111 975 1229 2426 history1 4 2 23 history1 0.5 10.1 20.7	44 0 14 3 747 1472 760 845 2233 history2 8 6 3 73 history2 0.3 10.4 21.4				
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 <i>imit/base</i> >25 >20 <i>imit/base</i> >3 >20	14 0 29 <1 562 1836 926 1024 3010 current 5 4 6 current 1.2 1.2 13.1	history1 3 0 63 <1 937 1111 975 1229 2426 history1 4 2 23 history1 0.5 10.1	44 0 14 3 747 1472 760 845 2233 history2 8 6 6 73 history2 0.3 10.4				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	2 0 50 0 950 1050 995 1180 2600 imit/base >25 imit/base >3 >20	14 0 29 <1 562 1836 926 1024 3010 current 5 4 6 current 1.2 1.2 13.1 29.6	history1 3 0 63 <1 937 1111 975 1229 2426 history1 4 2 23 history1 0.5 10.1 20.7	44 0 14 3 747 1472 760 845 2233 history2 8 6 3 73 history2 0.3 10.4 21.4 history2 19.1				
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	14 0 29 <1 562 1836 926 1024 3010 current 5 4 6 current 1.2 13.1 29.6 current	history1 3 0 63 <1 937 1111 975 1229 2426 history1 4 2 23 history1 0.5 10.1 20.7 history1	44 0 14 3 747 1472 760 845 2233 history2 8 6 6 73 history2 0.3 10.4 21.4 history2				



OIL ANALYSIS REPORT

VISUAL method limit/base





hite Metal ellow Metal ecipitate t t ebris und/Dirt pearance	scalar scalar scalar scalar scalar	*Visual *Visual	NONE			
ellow Metal ecipitate t ebris und/Dirt opearance	scalar scalar	*Visual		NONE	NONE	NONE
ecipitate t bbris Ind/Dirt opearance	scalar scalar		NONE	NONE	NONE	NONE
t ebris und/Dirt opearance	scalar	*Visual	NONE	NONE	NONE	NONE
ebris Ind/Dirt Ipearance		*Visual	NONE	NONE	NONE	NONE
nd/Dirt pearance		*Visual	NONE	NONE	NONE	NONE
pearance	scalar	*Visual	NONE	NONE	NONE	NONE
•	scalar	*Visual	NORML	NORML	NORML	NORML
lor	scalar	*Visual	NORML	NORML	NORML	NORML
nulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
ee Water	scalar	*Visual		NEG	NEG	NEG
						history2
	cSt	ASTM D445	12.00	13.3	11.9	10.4
errous Alloys						
iron						
nickel						
	<u> </u>					
Akabamana andara ana ana ana ana ana ana ana ana ana						
	3/21.		8/23 .			
an dia	Mai		Sep 1			
Jon-ferrous Metals						
copper						
tin						
	ar3/21		18/23			
	W		Sep			
/iscosity @ 100°C				Base Number		
			^{8.0}			
Abnormal			7.0			
			 ₽ 6.0	1		
Base			9 5.0			
			<u>ل</u> ے a 4.0			
			J.0 -			
Abnormal			8 2.0 -			
Abnormal			2.0 - 1.0 -			
Abnormal	Mar3/21 +		1.0	Apr28/20	Mar3/21	
	c @ 100°C GRAPHS errous Alloys fon chromium nickel on-ferrous Metals copper ead tin iscosity @ 100°C baomal	ARAPHS errous Alloys iron chromium nickel on-ferrous Metals Copper lead iscosity @ 100°C bromal	c @ 100°C cSt ASTM D445 GRAPHS errous Alloys icon	c @ 100°C cSt ASTM D445 12.00 GRAPHS errous Alloys on-ferrous Metals lead iscosity @ 100°C bernal	c @ 100°C cSt ASTM D445 12.00 13.3 FRAPHS errous Alloys on-ferrous Metals Copper bead for the set of the	c @ 100°C cSt ASTM D445 12.00 13.3 11.9 RAPHS errous Alloys on-ferrous Metals iscosity @ 100°C bernal

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Contact/Location: FRANK DIETZ - MIDFAR