

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id T295

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (--- 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

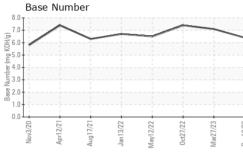
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

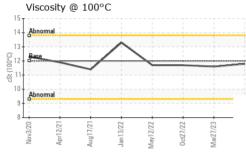
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0102223	PCA0092570	PCA0079578
Sample Date		Client Info		18 Dec 2023	27 Mar 2023	27 Oct 2022
Machine Age	mls	Client Info		249638	201188	176121
Oil Age	mls	Client Info		249638	201188	100388
Oil Changed		Client 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	16	22	26
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm		>4	0	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	5	5	6
Lead	ppm	ASTM D5185m	>40	0	2	<1
Copper	ppm	ASTM D5185m	>330	1	2	2
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	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 2
	ppm ppm					
Boron Barium		ASTM D5185m	2	5	3	2
Boron	ppm	ASTM D5185m ASTM D5185m	2 0	5 0	3 0	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	5 0 62	3 0 65	2 0 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	5 0 62 <1	3 0 65 <1	2 0 61 <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	5 0 62 <1 887	3 0 65 <1 921	2 0 61 <1 949
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	5 0 62 <1 887 1109	3 0 65 <1 921 1123	2 0 61 <1 949 1141
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 0 950 1050 995	5 0 62 <1 887 1109 975	3 0 65 <1 921 1123 987	2 0 61 <1 949 1141 1016
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 50 950 1050 995 1180	5 0 62 <1 887 1109 975 1247	3 0 65 <1 921 1123 987 1230	2 0 61 <1 949 1141 1016 1272
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 ASTM D5185m	2 0 50 0 950 1050 995 1180 2600	5 0 62 <1 887 1109 975 1247 2641	3 0 65 <1 921 1123 987 1230 2756	2 0 61 <1 949 1141 1016 1272 3197
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	5 0 62 <1 887 1109 975 1247 2641 current	3 0 65 <1 921 1123 987 1230 2756 history1	2 0 61 <1 949 1141 1016 1272 3197 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 method	2 0 50 0 950 1050 995 1180 2600 limit/base >25	5 0 62 <1 887 1109 975 1247 2641 <u>current</u> 10	3 0 65 <1 921 1123 987 1230 2756 history1 8	2 0 61 <1 949 1141 1016 1272 3197 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 0 950 1050 995 1180 2600 limit/base >25	5 0 62 <1 887 1109 975 1247 2641 <u>current</u> 10 1	3 0 65 <1 921 1123 987 1230 2756 history1 8 2	2 0 61 <1 949 1141 1016 1272 3197 history2 9 0
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	5 0 62 <1 887 1109 975 1247 2641 <u>current</u> 10 1 6	3 0 65 <1 921 1123 987 1230 2756 history1 8 2 2 6	2 0 61 <1 949 1141 1016 1272 3197 history2 9 0 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	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 Imit/base >25 >20 Imit/base >3	5 0 62 <1 887 1109 975 1247 2641 current 10 1 6 <i>current</i>	3 0 65 <1 921 1123 987 1230 2756 history1 8 2 6 history1	2 0 61 <1 949 1141 1016 1272 3197 history2 9 0 6 kistory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	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 Imit/base >25 >20 Imit/base >3	5 0 62 <1 887 1109 975 1247 2641 current 10 1 6 current 0.7	3 0 65 <1 921 1123 987 1230 2756 history1 8 2 6 history1 0.7	2 0 61 <1 949 1141 1016 1272 3197 history2 9 0 6 history2 0.9
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 t ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <i>imit/base</i> >25 >20 <i>imit/base</i> >3 >20	5 0 62 <1 887 1109 975 1247 2641 current 10 1 6 current 0.7 9.0	3 0 65 <1 921 1123 987 1230 2756 history1 8 2 2 6 history1 0.7 9.2	2 0 61 <1 949 1141 1016 1272 3197 history2 9 0 6 history2 0.9 10.6
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 t ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 imit/base >25 20 imit/base >3 >20 >30	5 0 62 <1 887 1109 975 1247 2641 current 10 1 6 current 0.7 9.0 21.4	3 0 65 <1 921 1123 987 1230 2756 history1 8 2 6 6 history1 0.7 9.2 21.0	2 0 61 <1 949 1141 1016 1272 3197 history2 9 0 6 <u>history2</u> 0.9 0.9 10.6 23.7
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 TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	2 0 0 50 0 950 1050 995 1180 2600 imit/base >25 >20 imit/base >3 >20 >30	5 0 62 <1 887 1109 975 1247 2641 10 1 10 1 6 <i>current</i> 0.7 9.0 21.4 <i>current</i>	3 0 65 <1 921 1123 987 1230 2756 history1 8 2 2 6 history1 0.7 9.2 21.0 history1	2 0 61 <1 949 1141 1016 1272 3197 history2 9 0 6 history2 0.9 10.6 23.7 history2





VISUAL





		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		
Jan 13/22 May 12/22	0ct27/22 Mar27/23 Dec18/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
May1	0ct2 Mar2 Dec1	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	11.8	11.6	11.7	
		GRAPHS							
		Ferrous Alloys							
52	23	40 35							
May12/22	0ct27/22 Mar27/23	30 - neessaan chromium							
Ma Ma	M. O	25							
		Ē 20-							
		15-							
		10							
		5-							
		Nov3/20 Apr12/21 Aug17/21	Jan 13/22 May 12/22	0ct27/22 Mar27/23	Dec18/23				
		Ap Aug	May	Mai Oct	Dec				
		Non-ferrous Metal	S						
	10 copper								
	8 - sessesses lead								
		^a 4							
				_					
		2-	1		7				
			and a state of the	and allowed and and and and and and and and and an	<u> </u>				
		Nov3/20 Apr12/21 Aug17/21	Jan 13/22 May 12/22	0ct27/22 Mar27/23	Dec18/23				
		4		Mar	Dec				
		Viscosity @ 100°C	;			Base Number			
		14 - Abnormal			8.0				
		13	<u> </u>				\sim		
					HOX 5.0				
		් 112 - මිසිදු මා 12 - මිසිදු නු 11-	-		(D)HOX 5.0 But 14.0 yaquun 3.0	0			
		ਲ੍ਹ 11-			quing 3.(0			
		10 - Abnormal			ae 2.0	0 -			
		9-	1		1.0				
		84							
		Nov3/20 Apr1 2/21 Aug1 7/21	Jan 13/22 May 12/22	0ct27/22 Mar27/23	Dec18/23	Nov3/20 Apr12/21 Aug17/21	Jan 13/22 May1 2/22	0ct27/22 Mar27/23	
		Api Aug	May	0ct Mari	Dec	No Apr	Jan May	Mari	
	1				NO 677				
	Laboratory	: WearCheck USA - 5			3 NW WHI	HITE & CO - COLUMBIA DIVISI			
4	Comple No.	: PCA0102223 Recieved : 20 Dec 2023 : 06040457 Diagnosed : 21 Dec 2023				100 INDEPENDENCE BLV			
NAB	Sample No.			110· he	Jec 2023		(COLLIMBIA	
	Lab Number	: 06040457	Diagnose				(
TENG LABORATORY	Sample No. Lab Number Unique Number Test Package	: <mark>06040457</mark> I r : 10795686 I	Diagnose Diagnost	t ician : Dor	Dec 2023 n Baldridge	C	(Contact: GEOR	Columbia, 9 US 292 Ge Edward	

