

OIL ANALYSIS REPORT

Sample Rating Trend







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.

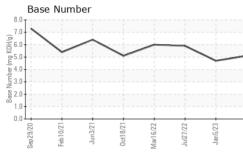
Fluid Condition

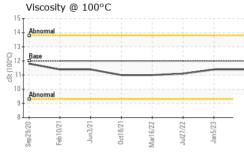
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2			
Sample Number		Client Info		PCA0107506	PCA0087457	PCA0078410			
Sample Date		Client Info		10 Oct 2023	05 Jan 2023	27 Jul 2022			
Machine Age	mls	Client Info		227480	176815	0			
Oil Age	mls	Client Info		25000	24786	0			
Oil Changed		Client Info		Changed	Changed	N/A			
Sample Status				NORMAL	NORMAL	NORMAL			
CONTAMINAT	ION	method	limit/base	current	history1	history2			
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0			
Glycol		WC Method		NEG	NEG	NEG			
WEAR METALS method limit/base current history1 history2									
Iron	ppm	ASTM D5185m		13	13	18			
Chromium	ppm	ASTM D5185m		<1	<1	<1			
Nickel	ppm	ASTM D5185m		<1	2	2			
Titanium	ppm	ASTM D5185m		0	<1	0			
Silver	ppm	ASTM D5185m		0	0	<1			
Aluminum	ppm	ASTM D5185m		3	3	5			
Lead	ppm	ASTM D5185m	>40	<1	<1	<1			
Copper	ppm	ASTM D5185m		2	2	3			
Tin	ppm	ASTM D5185m	>15	<1	<1	<1			
Vanadium	ppm	ASTM D5185m		0	0	0			
Cadmium	ppm	ASTM D5185m		0	0	0			
ADDITIVES						history2			
ADDITIVES		method	IIIIII/Dase	current	history1	mstoryz			
Boron	ppm	ASTM D5185m	2	2	5	9			
Boron Barium	ppm ppm								
Boron		ASTM D5185m	2	2	5	9			
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	2 0	2 0	5 0	9 0			
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	2 0 64	5 0 46	9 0 60			
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	2 0 64 0	5 0 46 <1	9 0 60 <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	2 0 64 0 925	5 0 46 <1 840	9 0 60 <1 924			
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	2 0 64 0 925 1103	5 0 46 <1 840 1192	9 0 60 <1 924 1106			
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	2 0 64 0 925 1103 978	5 0 46 <1 840 1192 889	9 0 60 <1 924 1106 942			
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	2 0 64 0 925 1103 978 1257	5 0 46 <1 840 1192 889 1118	9 0 60 <1 924 1106 942 1217			
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	2 0 64 0 925 1103 978 1257 3041	5 0 46 <1 840 1192 889 1118 3009	9 0 60 <1 924 1106 942 1217 3352			
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	2 0 64 0 925 1103 978 1257 3041 current	5 0 46 <1 840 1192 889 1118 3009 history1	9 0 60 <1 924 1106 942 1217 3352 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	2 0 64 0 925 1103 978 1257 3041 <i>current</i> 6	5 0 46 <1 840 1192 889 1118 3009 history1 6	9 0 60 <1 924 1106 942 1217 3352 history2 10			
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	2 0 50 950 1050 995 1180 2600 limit/base >25	2 0 64 0 925 1103 978 1257 3041 <u>current</u> 6 2	5 0 46 <1 840 1192 889 1118 3009 history1 6 5	9 0 60 <1 924 1106 942 1217 3352 history2 10 1			
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	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 >20	2 0 64 0 925 1103 978 1257 3041 current 6 2 3 3 current	5 0 46 <1 840 1192 889 1118 3009 history1 6 5 4 4 history1	9 0 60 <1 924 1106 942 1217 3352 history2 10 1 1 1 history2			
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 >20	2 0 64 0 925 1103 978 1257 3041 <i>current</i> 6 2 3 3 <i>current</i> 0.5	5 0 46 <1 840 1192 889 1118 3009 history1 6 5 4 4 history1 0.5	9 0 60 <1 924 1106 942 1217 3352 history2 10 1 1 1 history2 0.5			
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	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 Imit/base >25 >20 Imit/base >20	2 0 64 0 925 1103 978 1257 3041 current 6 2 3 3 current	5 0 46 <1 840 1192 889 1118 3009 history1 6 5 4 4 history1	9 0 60 <1 924 1106 942 1217 3352 history2 10 1 1 1 history2			
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	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <i>imit/base</i> >25 >20 <i>imit/base</i> >4 >20	2 0 64 0 925 1103 978 1257 3041 <i>current</i> 6 2 3 3 <i>current</i> 0.5 9.4	5 0 46 <1 840 1192 889 1118 3009 history1 6 5 4 4 history1 0.5 10.7 23.7	9 0 60 <1 924 1106 942 1217 3352 history2 10 1 1 1 1 <i>history2</i> 0.5 10.4 24.0			
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	2 0 50 950 1050 995 1180 2600 imit/base >25 >20 imit/base >4 >20 >30	2 0 64 0 925 1103 978 1257 3041 <i>current</i> 6 2 3 3 <i>current</i> 0.5 9.4 21.6 <i>current</i>	5 0 46 <1 840 1192 889 1118 3009 history1 6 5 4 4 history1 0.5 10.7 23.7 history1	9 0 60 <1 924 1106 942 1217 3352 history2 10 1 1 1 history2 0.5 10.4 24.0 history2			
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	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 imit/base >25 20 imit/base >4 >20 >30	2 0 64 0 925 1103 978 1257 3041 <i>current</i> 6 2 3 3 <i>current</i> 0.5 9.4 21.6	5 0 46 <1 840 1192 889 1118 3009 history1 6 5 4 4 history1 0.5 10.7 23.7	9 0 60 <1 924 1106 942 1217 3352 history2 10 1 1 1 1 <i>history2</i> 0.5 10.4 24.0			



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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 Odor	scalar	*Visual *Visual	NORML NORML	NORML	NORML NORML	NORML NORML
Emulsified Water	scalar scalar	*Visual	>0.2	NORML NEG	NEG	NEG
Free Water	scalar	*Visual	>0.2	NEG	NEG	NEG
FLUID PROPE		method	limit/base		history1	history2
Visc @ 100°C	cSt	ASTM D445	12.00	current	11.4	11.1
	CSI	A511VI D445	12.00	11.4	11.4	11.1
GRAPHS						
Ferrous Alloys						
30 - iron chromium						
25 - nickel						
20	-					
15						
10-						
5		\mathbf{X}				
	21	3 52	Si S			
Sep 29/20 Feb 10/21 Jun 3/21	0ct18/21 Mar16/22	Jul27/22 Jan5/23	0ct10/23			
» - Non-ferrous Meta	2	с ,	0			
⁶⁰ T	15					
40 - copper						
20 tin						
100						
80						
60						
40-						
20						
2 Z Z	121	22	23			
Sep 29/20 Feb 10/21 Jun 3/21	0ct18/21 Mar16/22	Jul27/22 Jan5/23	0ct10/23			
Viscosity @ 100°	-		_	Dana Muuri		
¹⁵				Base Number		
14 Abnormal				7.0		
13						_
			KOH	5.0	\checkmark	
			3	1.0		
i i i			Mumb	8.0 -		
Abnormal			Base	2.0		
9-				1.0 -		
8						~ ~ ~
Sep 29/20 Feb 10/21 Jun 3/21	0ct18/21 Mar16/22	Jul27/22 Jan5/23	0ct10/23	Sep29/20 Feb10/21 Jun3/21	0ct18/21 Mar16/22	Jan5/23
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S B	D N	·	0	S L	_ ≥	,

Jul2 Jan Ър 0ct] Feb Ct. 0ct1 Sep2 Feb Mar1 Jul2 Sepi Mar¹ NW WHITE & CO - COLUMBIA DIVISION Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : PCA0107506 Received : 18 Oct 2023 100 INDEPENDENCE BLVD Lab Number : 05982762 Diagnosed : 19 Oct 2023 COLUMBIA, SC Unique Number : 10700057 Diagnostician : Wes Davis US 29210 Test Package : FLEET Contact: GEORGE EDWARDS Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. gedwards@nwwhite.com * - 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)

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