

OIL ANALYSIS REPORT

Sample Rating Trend





Component Gasoline 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.

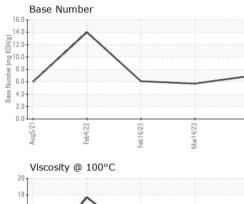
Fluid Condition

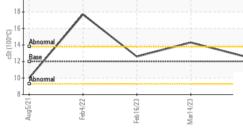
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

		-		Heb2023 Mar2023		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0091745	PCA0071396	PCA0045493
Sample Date		Client Info		07 Dec 2023	14 Mar 2023	16 Feb 2023
Machine Age	mls	Client Info		54825	48506	33848
Oil Age	mls	Client Info		6319	14658	9536
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ATTENTION	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	<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	>150	16	28	25
Chromium	ppm		>20	<1	1	1
Nickel	ppm	ASTM D5185m	>5	<1	<1	<1
Titanium	ppm	ASTM D5185m	~0	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m		4	8	5
Lead	ppm	ASTM D5185m	>50	1	0	1
Copper	ppm	ASTM D5185m		37	54	86
Tin	ppm	ASTM D5185m	>10	0	<1	<1
Vanadium	ppm	ASTM D5185m	>10	<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
	ppin			U		
ADDITIVES	ppm	method	limit/base	current	history1	history2
	ppm		limit/base			
ADDITIVES		method ASTM D5185m		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	current 0	history1 2 0 61	history2 <1
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	2 0 50	current 0 0	history1 2 0	history2 <1 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	current 0 0 58	history1 2 0 61	history2 <1 0 60
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	Current 0 0 58 <1 898 950	history1 2 0 61 2 953 1040	history2 <1 0 60 3 866 1034
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	Current 0 0 58 <1 898	history1 2 0 61 2 953 1040 939	history2 <1 0 60 3 866 1034 796
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	Current 0 0 58 <1 898 950	history1 2 0 61 2 953 1040 939 1229	history2 <1 0 60 3 866 1034
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	2 0 50 0 950 1050 995	Current 0 58 <1 898 950 842	history1 2 0 61 2 953 1040 939	history2 <1 0 60 3 866 1034 796
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	2 0 50 0 950 1050 995 1180	Current 0 58 <1 898 950 842 1088	history1 2 0 61 2 953 1040 939 1229	history2 <1 0 60 3 866 1034 796 1111
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	2 0 50 950 1050 995 1180 2600	Current 0 58 <1 898 950 842 1088 2362	history1 2 0 61 2 953 1040 939 1229 2865	history2 <1 0 60 3 866 1034 796 11111 2348
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method 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	Current 0 58 <1 898 950 842 1088 2362 Current	history1 2 0 61 2 953 1040 939 1229 2865 history1	history2 <1 0 60 3 866 1034 796 1111 2348 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	2 0 50 950 1050 995 1180 2600 Limit/base >30 >400	current 0 0 58 <1 898 950 842 1088 2362 current 9	history1 2 0 61 2 953 1040 939 1229 2865 history1 13	<1 0 60 3 866 1034 796 1111 2348 history2 12
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	2 0 50 950 1050 995 1180 2600 Limit/base >30 >400	current 0 0 58 <1 898 950 842 1088 2362 current 9 1 0	history1 2 0 61 2 953 1040 939 1229 2865 history1 13 4	<1 0 60 3 866 1034 796 1111 2348 history2 12 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >30 >400	current 0 0 58 <1 898 950 842 1088 2362 current 9 1 0	history1 2 0 61 2 953 1040 939 1229 2865 history1 13 4 <1	<1 0 60 3 866 1034 796 1111 2348 history2 12 4 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 Imit/base >30 >400 >20	Current 0 0 58 <1 898 950 842 1088 2362 current 9 1 0 current	history1 2 0 61 2 953 1040 939 1229 2865 history1 13 4 <1 history1	<1 0 60 3 866 1034 796 1111 2348 history2 12 4 2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 Imit/base >30 >400 >20	Current 0 0 58 <1 898 950 842 1088 2362 current 9 1 0 current 0.1	history1 2 0 61 2 953 1040 939 1229 2865 history1 13 4 <1 history1 0.1	<1 0 60 3 866 1034 796 1111 2348 history2 12 4 2 history2 0.1
ADDITIVES 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	method ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <i>limit/base</i> >30 >400 >20	Current 0 0 58 <1 898 950 842 1088 2362 current 9 1 0 current 0.1 14.3 24.2	history1 2 0 61 2 953 1040 939 1229 2865 history1 13 4 <1 history1 0.1 18.2	<1 0 60 3 866 1034 796 1111 2348 history2 12 4 2 history2 0.1 15.0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7185M *ASTM D7624 *ASTM D7415 method	2 0 50 0 950 1050 995 1180 2600 limit/base >30 >400 >20 limit/base >20 >30 >30 >20	Current 0 0 58 <1 898 950 842 1088 2362 current 9 1 0 current 0.1 14.3 24.2 current	history1 2 0 61 2 953 1040 939 1229 2865 history1 13 4 <1 history1 0.1 18.2 30.7 history1	<1 0 60 3 866 1034 796 1111 2348 history2 12 4 2 history2 0.1 15.0 30.6 history2
ADDITIVES 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	method ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >30 >400 >20 limit/base >20 >30 >30 >20	Current 0 0 58 <1 898 950 842 1088 2362 current 9 1 0 current 0.1 14.3 24.2	history1 2 0 61 2 953 1040 939 1229 2865 history1 13 4 <1 history1 0.1 18.2 30.7	<1 0 60 3 866 1034 796 1111 2348 history2 12 4 2 history2 0.1 15.0 30.6



OIL ANALYSIS REPORT





	VISTA						
	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
Dec7/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Dec	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual	20.L	NEG	NEG	NEG
	FLUID PROP		method	limit/base	current	history1	history2
_	Visc @ 100°C	cSt	ASTM D445	12.00	12.6	▲ 14.3	12.6
	GRAPHS				-		-
1	Ferrous Alloys						
	¹²⁰						
	100 - iron		 				
	nickel						
	80						
	§ 60						
	40						
	20						
	0						
	Aug5/21 Feb4/22	Feb 16/23	Mar14/23	Dec7/23			
	Au	Feb	Mar	De			
	Non-ferrous Met	tals					
	500 copper		·				
	400						
	400 management tin						
	300						
	200-						
	200						
	200	b16/23	ari 4/23	be7/23			
	Aug5/2/1	Feb 16/23	Mari 4/23	Dec7/23			
	200		Mar14/23		Base Numbe	er.	
	2000 1000 1000 1000 1000 1000 1000 1000 200 2		Mari 4/23	16.0	Terrerer et al	2r	
	2000 1000 1(7) 2000 1000 1(7) 2000 100 1000 1		Mai14/23	16.0]	2r.	
	200 100 100 100 100 100 100 100		Mart 4/23	16.0]	2r	
	200 100 100 100 100 100 100 100		Marl 4/23	16.0]	2r	
	200 100 0 127 100 100 100 100 100 100 100 10		Mart 4/23	16.0]	er	
	200 100 100 100 100 100 100 100		Mar14/23	16.0]	er	
	200 100 0 12/5 100 0 12/5 12/5 100 100 100 100 100 100 100 10		Mari 4/23	16.0 14.0 (0)HO() Buij sequence 5.0 8.0 9 8.0 9 8.0 9 8.0 9 8.0 9 8.0 9 8.0 9 8.0 9 8.0 9 8.0 9 8.0 9 8.0 9 8.0 9 8.0 9 8.0 9 8.0 9 8.0 9 14.0 10.0 9 10.0 10.0 10.0 10.0 10.0 10.0		51.	
	2000 1000 0 100		Mar14/23	16.0 14.0 (0)10.0 0) 10.0 0 0) 10.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		51.	
	200 100 100 100 100 100 100 100	°C		16.0 14.0 (0)(12.0 HOX Bu) a-quinty 8.0 8.0 988 4.0 2.0 0.0			23
	200 100 0 12/5 100 0 12/5 12/5 100 100 100 100 100 100 100 10	°C		16.0 14.0 (0)10.0 0) 10.0 0 10.0 10.0 10.0 100			harl4/23
poratory mple No. 5 Number que Number	Viscosity @ 100 Viscosity @ 100 Viscosity @ 100	• C	son Ave., Ca d : 20 l ed : 21 l tician : Sea	16.0 14.0 (6)HO() fbul) as 8.0 1000 fbul) as 8.0 888 group 8.0 2.0 500 fbul) as 8.0 2.0 0.0	Aug5/21	500 PP	CSB370 - Alto North Alby Roa Godfrey, US 6203
oratory nple No. Number	Uiscosity @ 100 Viscosity @ 100 Viscosity @ 100	• C	son Ave., Ca d : 20 l ed : 21 l tician : Sea	16.0 14.0 14.0 14.0 14.0 10.0 10.0 10.0 10	Aug5/21	500 PP	CSB370 - Alto North Alby Roa Godfrey,

To discuss this sample * - 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)

Certificate L2367

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