

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id F23 Component

Diesel Engine

Fluid CHEVRON URSA SUPER PLUS EC 15W40 (--- 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

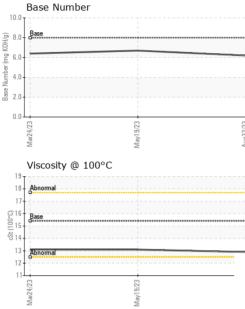
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0841490	WC0758958	WC0758962
Sample Date		Client Info		22 Aug 2023	19 May 2023	24 Mar 2023
Machine Age	hrs	Client Info		8372	7419	7415
Oil Age	hrs	Client Info		553	405	558
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATIO	N	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	6	5	4
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	1	1
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	<1	0	0
Tin	ppm	ASTM D5185m	>15	0	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
			11 1. 4			
ADDITIVES		method				history2
ADDITIVES Boron	ppm	Method ASTM D5185m	limit/base	current 33	history1 53	history2 48
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	33	53	48
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	33 2	53 0	48 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	33 2 66	53 0 68	48 0 65
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	33 2 66 0	53 0 68 <1	48 0 65 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1200	33 2 66 0 78	53 0 68 <1 86	48 0 65 <1 80
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		33 2 66 0 78 2083	53 0 68 <1 86 2170	48 0 65 <1 80 2077
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	1200	33 2 66 0 78 2083 922	53 0 68 <1 86 2170 979	48 0 65 <1 80 2077 929
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	1200	33 2 66 0 78 2083 922 1105	53 0 68 <1 86 2170 979 1181	48 0 65 <1 80 2077 929 1129
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	1200 1300	33 2 66 0 78 2083 922 1105 3808	53 0 68 <1 86 2170 979 1181 4517	48 0 65 <1 80 2077 929 1129 4430
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	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	1200 1300 limit/base	33 2 66 0 78 2083 922 1105 3808 current	53 0 68 <1 86 2170 979 1181 4517 history1	48 0 65 <1 80 2077 929 1129 4430 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS 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 method ASTM D5185m	1200 1300 limit/base >25	33 2 66 0 78 2083 922 1105 3808 current 5	53 0 68 <1 86 2170 979 1181 4517 history1 5	48 0 65 <1 80 2077 929 1129 4430 history2 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	1200 1300 limit/base >25	33 2 66 0 78 2083 922 1105 3808 <u>current</u> 5 < 1	53 0 68 <1 86 2170 979 1181 4517 history1 5 <<1	48 0 65 <1 80 2077 929 1129 4430 history2 8 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 limit/base >25 >20	33 2 66 0 78 2083 922 1105 3808 <u>current</u> 5 < 1 2	53 0 68 <1 86 2170 979 1181 4517 history1 5 < <1 <1	48 0 65 <1 80 2077 929 1129 4430 history2 8 0 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 limit/base >25 >20 limit/base >3	33 2 66 0 78 2083 922 1105 3808 current 5 <1 2 2 current	53 0 68 <1 86 2170 979 1181 4517 history1 5 <1 <1 <1 <1 history1	48 0 65 <1 80 2077 929 1129 4430 history2 8 0 0 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 limit/base >25 >20 limit/base >3	33 2 66 0 78 2083 922 1105 3808 <u>current</u> 5 <1 2 2 <u>current</u> 0.5	53 0 68 <1 86 2170 979 1181 4517 history1 5 <1 <1 <1 <1 0.5	48 0 65 <1 80 2077 929 1129 4430 history2 8 0 0 0 history2 0.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 limit/base >25 >20 limit/base >3 >20	33 2 66 0 78 2083 922 1105 3808 <i>current</i> 5 <1 2 2 <i>current</i> 0.5 8.5	53 0 68 <1 86 2170 979 1181 4517 history1 5 <1 <1 <1 <1 history1 0.5 8.2	48 0 65 <1 80 2077 929 1129 4430 history2 8 0 0 0 history2 0.7 8.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	1200 1300 1300 limit/base >25 >20 limit/base >3 >20 >3 >20	33 2 66 0 78 2083 922 1105 3808 <u>current</u> 5 <1 2 2 <u>current</u> 0.5 8.5 18.1	53 0 68 <1 86 2170 979 1181 4517 history1 5 <1 <1 <1 <1 0.5 8.2 17.3	48 0 65 <1 80 2077 929 1129 4430 history2 8 0 0 history2 0.7 8.1 17.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	1200 1300 1300 225 >20 20 1imit/base >3 >20 >30 >30 20 >30 20 >30	33 2 66 0 78 2083 922 1105 3808 <i>current</i> 5 <1 2 <i>current</i> 0.5 8.5 18.1	53 0 68 <1 86 2170 979 1181 4517 history1 5 <1 <1 <1 istory1 0.5 8.2 17.3 history1	48 0 65 <1 80 2077 929 1129 4430 history2 8 0 0 0 history2 0.7 8.1 17.8 history2



OIL ANALYSIS REPORT

VISUAL



		VISUAL		method	limit/base	current	nistory i	nistory2
		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
1/23	1/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
May19/23	Aug22/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
2	4	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
		Free Water	scalar	*Visual	20.2	NEG	NEG	NEG
1	1							
		FLUID PROPER		method	limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	15.4	12.9	13.1	13.1
		GRAPHS						
		Ferrous Alloys						
/23		iron						
May19/23		8 - nickel						
2		6 -						
		u dd						
		4						
		2-						
		2						
		0		100 mm/4440 000 mm/4440 mm				
		24/23	19/23		Aug22/23			
		Mar	May1		Aug			
		Non-ferrous Met	als					
		10 copper]						
		8						
		ensesses tin						
		6						
		E d						
		2						
		23	23		23			
		:24/	May19/23		Aug22/23			
		70			A			
		Mar24/23						
		[™] Viscosity @ 100°			9.0	Base Number		
		Viscosity @ 100°			9.0	T Page		
		Viscosity @ 100°			8.0	Base		
	;	Viscosity @ 100°			8.0	Base		
		Viscosity @ 100°			8.0	Base		
		Viscosity @ 100°			8.0	Base		
		Viscosity @ 100°				Base		
		Viscosity @ 100°			8.0	Base		
		Viscosity @ 100°	РС		8.0 (0)7.0 (0)HQO (0) (0)HQO (0) (0) (0) (0) (0) (0) (0) (0) (0) (0)	Base		
		Viscosity @ 100°	РС		8.0 (0)7.0 (0)HQO (0) (0)HQO (0) (0) (0) (0) (0) (0) (0) (0) (0) (0)	Base	19/23	
		Viscosity @ 100°			8.0 (0,7.0 (0)HO(5,0)HO(5,0) (0)HO(5,0)HO(5,0) (0)HO(5,0)H	Base	May19/23	
REDITED LA	aboratory ample No. ab Number nique Number est Package	Viscosity @ 100°	2C 501 Madis Received Diagnose	d : 28 / ed : 29 / tician : Sea	8.0 6,0,7.0 5.0 9.5,0 9.0 8 gase Number 0.0 8 gase Number 0.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0	Base EZ1+72 IEW	/alley Waste - 3 30	SEW Locatio 09 Salina Ro Sewell, US 080 ervice Manag
NG LASONATORY Ur ficate L2367 Te	aboratory ample No. ab Number nique Number est Package	Viscosity @ 100° Abnormal Abnormal Abnormal CC CC CC CC CC CC CC CC CC C	• 501 Madis Received Diagnose Diagnost al Tests: TI	d : 28 / ed : 29 / tician : Sea BN)	ry, NC 27513 Aug 2023 an Felton	Base EZ1+72 IEW	/alley Waste - 3 30	09 Salina Ro Sewell, US 080
Since 12367 Te discuss this sa	aboratory ample No. ab Number nique Number sest Package ample report, o	Viscosity @ 100°	 501 Madis Received Diagnose Diagnost al Tests: Ti 	d::287 ed::297 tician::Sea BN) 200-237-1369	ry, NC 27513 Aug 2023 an Felton	Base EZ1+72 IEW	/alley Waste - 3 30	09 Salina Ro Sewell, I US 080



Report Id: AVWSEW [WUSCAR] 05936562 (Generated: 08/29/2023 16:24:41) Rev: 1

Contact/Location: Service Manager - AVWSEW