

## **OIL ANALYSIS REPORT**

Sample Rating Trend

Nov2021 May2022 Nov2022 Apr/023 Sep2023





**Front Differential** 

CHEVRON DELO SYNTHETIC GEAR 75W90 (--- 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.

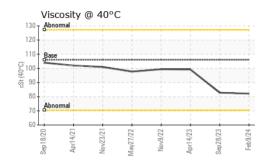
### Fluid Condition

The condition of the oil is acceptable for the time in service.

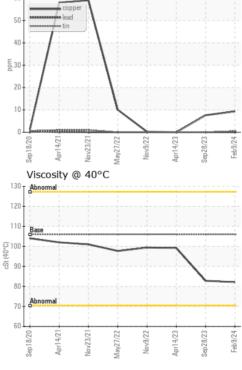
SAMPLE INFORM	ΛΑΤΙΟΝ	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0111615	PCA0101896	PCA0095282
Sample Date		Client Info		09 Feb 2024	28 Sep 2023	14 Apr 2023
Machine Age	mls	Client Info		0	0	0
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Water		WC Method	>.2	NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>500	56	57	100
Chromium	ppm	ASTM D5185m	>10	<1	0	1
Nickel	ppm	ASTM D5185m	>10	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>25	<1	0	1
Lead	ppm	ASTM D5185m	>25	0	0	0
Copper	ppm	ASTM D5185m	>100	9	8	0
Tin	ppm	ASTM D5185m	>10	<1	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		228	237	224
						0
Barium	ppm	ASTM D5185m		1	0	0
	ppm ppm	ASTM D5185m ASTM D5185m			0 20	2
Molybdenum	ppm			18		
Molybdenum Manganese	ppm ppm	ASTM D5185m			20 3	2
Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		18 3 91	20 3 100	2 4 11
Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		18 3 91 125	20 3 100 199	2 4 11 29
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		18 3 91 125 1240	20 3 100 199 1293	2 4 11 29 1353
Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		18 3 91 125	20 3 100 199	2 4 11 29
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	18 3 91 125 1240 137	20 3 100 199 1293 161	2 4 11 29 1353 26
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	limit/base	18 3 91 125 1240 137 19811	20 3 100 199 1293 161 21192 history1	2 4 11 29 1353 26 28415 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN <sup>T</sup> Silicon	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		18 3 91 125 1240 137 19811 current 10	20 3 100 199 1293 161 21192 history1 10	2 4 11 29 1353 26 28415 history2 10
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>75	18 3 91 125 1240 137 19811 current	20 3 100 199 1293 161 21192 history1	2 4 11 29 1353 26 28415 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>75	18 3 91 125 1240 137 19811 <u>current</u> 10 2 2	20 3 100 199 1293 161 21192 history1 10 1	2 4 11 29 1353 26 28415 history2 10 4
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium VISUAL	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>75 >20	18 3 91 125 1240 137 19811 <u>current</u> 10 2 2	20 3 100 199 1293 161 21192 history1 10 1 0	2 4 11 29 1353 26 28415 <b>history2</b> 10 4 <1
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium VISUAL White Metal	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>75 >20 limit/base	18 3 91 125 1240 137 19811 current 10 2 2 2	20 3 100 199 1293 161 21192 history1 10 1 0 history1	2 4 11 29 1353 26 28415 history2 10 4 <1 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium VISUAL White Metal Yellow Metal	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	>75 >20 limit/base NONE	18 3 91 125 1240 137 19811 current 10 2 2 2 current NONE	20 3 100 199 1293 161 21192 history1 10 1 0 history1 NONE	2 4 11 29 1353 26 28415 history2 10 4 <1 kistory2 NONE
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium VISUAL White Metal Yellow Metal Precipitate	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm scalar scalar	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Yisual	>75 >20 limit/base NONE NONE	18 3 91 125 1240 137 19811 <i>current</i> 10 2 2 2 <i>current</i> NONE NONE	20 3 100 199 1293 161 21192 history1 10 1 0 history1 NONE NONE NONE	2 4 11 29 1353 26 28415 history2 10 4 <1 kistory2 NONE NONE
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium VISUAL White Metal Yellow Metal Precipitate Silt	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm scalar scalar scalar	ASTM D5185m ASTM D5185m Yisual	>75 >20 limit/base NONE NONE NONE	18 3 91 125 1240 137 19811 <i>current</i> 10 2 2 2 <i>current</i> NONE NONE NONE	20 3 100 199 1293 161 21192 history1 10 1 0 history1 NONE NONE NONE NONE	2 4 11 29 1353 26 28415 history2 10 4 <1 ×10 kistory2 NONE NONE NONE NONE
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium VISUAL White Metal Yellow Metal Precipitate Silt Debris	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm scalar scalar scalar scalar scalar	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *Visual *Visual *Visual *Visual *Visual *Visual	>75 >20 limit/base NONE NONE NONE NONE NONE	18 3 91 125 1240 137 19811 <i>current</i> 10 2 2 2 <i>current</i> NONE NONE NONE NONE NONE LIGHT	20 3 100 199 1293 161 21192 history1 10 1 0 history1 NONE NONE NONE NONE NONE NONE LIGHT	2 4 11 29 1353 26 28415 history2 10 4 <1 history2 NONE NONE NONE NONE NONE NONE NONE
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium VISUAL White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt	ppm ppm ppm 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 ASTM D5185m *Visual *Visual *Visual *Visual *Visual *Visual *Visual	>75 >20 limit/base NONE NONE NONE NONE NONE NONE	18 3 91 125 1240 137 19811 <i>current</i> 10 2 2 2 <i>current</i> NONE NONE NONE NONE LIGHT NONE	20 3 100 199 1293 161 21192 history1 10 1 0 history1 NONE NONE NONE NONE NONE LIGHT NONE	2 4 11 29 1353 26 28415 history2 10 4 <1 history2 NONE NONE NONE NONE NONE NONE NONE NON
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium VISUAL White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance	ppm ppm ppm 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 ASTM D5185m *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual	>75 20 limit/base NONE NONE NONE NONE NONE NONE NONE NON	18 3 91 125 1240 137 19811 <i>current</i> 10 2 2 2 <i>current</i> NONE NONE NONE NONE LIGHT NONE LIGHT	20 3 100 199 1293 161 21192 history1 10 1 0 history1 NONE NONE NONE NONE LIGHT NONE LIGHT NONE NONE	2 4 11 29 1353 26 28415 history2 10 4 <1 NONE NONE NONE NONE NONE NONE NONE NON
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium VISUAL White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor	ppm ppm ppm 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 *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual	>75 20 imit/base NONE NONE NONE NONE NONE NONE NONE NON	18 3 91 125 1240 137 19811 <i>current</i> 10 2 2 2 <i>current</i> NONE NONE NONE LIGHT NONE LIGHT NONE NORML	20 3 100 199 1293 161 21192 history1 10 1 0 history1 NONE NONE NONE NONE LIGHT NONE NORMA	2 4 11 29 1353 26 28415 <b>history2</b> 10 4 <1 <b>history2</b> NONE NONE NONE NONE NONE NONE NONE NON
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium VISUAL White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance	ppm ppm ppm 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 ASTM D5185m *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual	>75 20 limit/base NONE NONE NONE NONE NONE NONE NONE NON	18 3 91 125 1240 137 19811 <i>current</i> 10 2 2 2 <i>current</i> NONE NONE NONE NONE LIGHT NONE LIGHT	20 3 100 199 1293 161 21192 history1 10 1 0 history1 NONE NONE NONE NONE LIGHT NONE LIGHT NONE NONE	2 4 11 29 1353 26 28415 <b>history2</b> 10 4 <1 <b>history2</b> NONE NONE NONE NONE NONE NONE NONE NON



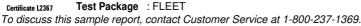
# **OIL ANALYSIS REPORT**



FLUID PROPI	ERTIES	method	limit/base	current	history1	history2			
Visc @ 40°C	cSt	ASTM D445	106	82.1	82.8	99.2			
SAMPLE IMA	GES	method	limit/base	current	history1	history2			
Color				no image	no image	no image			
Bottom				no image	no image	no image			
GRAPHS									
Ferrous Alloys									
100	~								
80-	$\bigvee$	$\langle \rangle$							
Ē. 60 -		$\sim$							
40 -									
20 -									
21	22	3 23	54						
Sep18/20 Apr14/21 Nov23/21	May27/22 Nov9/22	Apr14/23 Sep28/23	Feb9/24						
Non-ferrous Meta	Non-ferrous Metals								
50 - copper 50 - tim									







: PCA0111615

\* - 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)

Received

Diagnosed

Tested

Laboratory Sample No.

Lab Number : 06096504

Unique Number : 10889357

Submitted By: DAVID WEBB

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