

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

IRIS Component

Component 2 Diesel Engine

Fluid CHEVRON DELO 400 MULTIGRADE 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

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	1ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0727910	WC0727973	WC0727955
Sample Date		Client Info		09 Jul 2024	15 Jan 2024	26 May 2023
Machine Age	hrs	Client Info		5182	4250	3627
Oil Age	hrs	Client Info		500	500	271
Oil Changed		Client Info		Changed	N/A	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	J	method	limit/base	current	historv1	historv2
Fuel		WC Method	>5	~10	<10	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method	20.L	NEG	NEG	NEG
		mothod	limit/booo	ourropt	history	history?
WEAR METALS			IIIIII/Dase	current	Tilstory i	TilStoryz
Iron	ppm	ASTM D5185m	>100	4	5	4
Chromium	ppm	ASTM D5185m	>20	0	<1	0
Nickel	ppm	ASTM D5185m	>4	<1	1	0
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	3	3
Lead	ppm	ASTM D5185m	>40	4	8	<1
Copper	ppm	ASTM D5185m	>330	0	1	<1
Tin	ppm	ASTM D5185m	>15	<1	1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	maa	ASTM D5185m		0	<1	0
	1-1-			•		
ADDITIVES	F F	method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 240	history1 284	history2 396
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 151 0.4	current 240 0	history1 284 0	history2 396 2
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 151 0.4 250	current 240 0 126	history1 284 0 140	history2 396 2 182
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 151 0.4 250	current 240 0 126 <1	history1 284 0 140 <1	history2 396 2 182 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 151 0.4 250 0	current 240 0 126 <1 692	history1 284 0 140 <1 717	history2 396 2 182 <1 866
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 151 0.4 250 0 2046	current 240 0 126 <1 692 1563	history1 284 0 140 <1 717 1418	history2 396 2 182 <1 866 2052
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	limit/base 151 0.4 250 0 2046 1043	current 240 0 126 <1 692 1563 772	history1 284 0 140 <1 717 1418 646	history2 396 2 182 <1 866 2052 975
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 151 0.4 250 0 2046 1043 943	current 240 0 126 <1 692 1563 772 880	history1 284 0 140 <1 717 1418 646 916	history2 396 2 182 <1 866 2052 975 1130
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	limit/base 151 0.4 250 0 2046 1043 943 5012	current 240 0 126 <1 692 1563 772 880 2953	history1 284 0 140 <1 717 1418 646 916 2226	history2 396 2 182 <1 866 2052 975 1130 3639
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	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 ASTM D5185m	limit/base 151 0.4 250 0 2046 1043 943 5012 limit/base	current 240 0 126 <1 692 1563 772 880 2953 current	history1 284 0 140 <1 717 1418 646 916 2226 history1	history2 396 2 182 <1 866 2052 975 1130 3639 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	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 ASTM D5185m	linit/base 151 0.4 250 0 2046 1043 943 5012 binit/base >25	current 240 0 126 <1 692 1563 772 880 2953 current 5	history1 284 0 140 <1 717 1418 646 916 2226 history1 64	history2 396 2 182 <1 866 2052 975 1130 3639 history2 7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	linit/base 151 0.4 250 0 2046 1043 943 5012 linit/base >25	current 240 0 126 <1 692 1563 772 880 2953 current 5 2	history1 284 0 140 <1 717 1418 646 916 2226 history1 6 0	history2 396 2 182 <1 866 2052 975 1130 3639 history2 7 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 151 0.4 250 0 2046 1043 943 5012 base >25 20	current 240 0 126 <1 692 1563 772 880 2953 current 5 2 0	history1 284 0 140 <1 717 1418 646 916 2226 history1 6 0 2	history2 396 2 182 <1 866 2052 975 1130 3639 history2 7 0 1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	imit/base 151 0.4 250 0 2046 1043 943 5012 imit/base >20 ≥20	current 240 0 126 <1 692 1563 772 880 2953 current 5 2 0 current 5 2 0 current	history1 284 0 140 <1 717 1418 646 916 2226 history1 6 0 2 history1	history2 396 2 182 <1 866 2052 975 1130 3639 history2 7 0 1 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	method ASTM D5185m	limit/base 151 0.4 250 0 2046 1043 943 5012 limit/base >25 20 limit/base >3	current 240 0 126 <1 692 1563 772 880 2953 current 5 2 0 current 5 2 0 current 0.1	history1 284 0 140 <1 717 1418 646 916 2226 history1 6 0 2 history1 0.1	history2 396 2 182 <1 866 2052 975 1130 3639 history2 7 0 1 history2 0.1
ADDITIVES 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	method ASTM D5185m	imit/base 151 0.4 250 0 2046 1043 943 5012 imit/base >25 20 imit/base >3 >20	current 240 0 126 <1 692 1563 772 880 2953 current 5 2 0 current 0 current 7.8	history1 284 0 140 <1 717 1418 646 916 2226 history1 6 0 2 history1 0.1 7.9	history2 396 2 182 <1 866 2052 975 1130 3639 history2 7 0 1 history2 0.1 7.2
ADDITIVES 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	method ASTM D5185m ASTM D7844 *ASTM D7624	imit/base 151 0.4 250 0 2046 1043 943 5012 2014 255 220 220 imit/base >33 >20 >30	current 240 0 126 <1 692 1563 772 880 2953 current 5 2 0 current 5 2 0 current 0.1 7.8 22.4	history1 284 0 140 <1 717 1418 646 916 2226 history1 6 0 2 history1 0 2226 1418 0.1 7.9 22.6	history2 396 2 182 <1 866 2052 975 1130 3639 history2 7 0 1 history2 0.1 7.2 22.3
ADDITIVES 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	method ASTM D5185m	imit/base 151 0.4 250 0 2046 1043 943 5012 imit/base >20 imit/base >3 >20 imit/base >3 30	current 240 0 126 <1 692 1563 772 880 2953 current 5 2 0 current 0 current 0.1 7.8 22.4	history1 284 0 140 <1 717 1418 646 916 2226 history1 6 0 2 history1 0.1 7.9 22.6 history1	history2 396 2 182 <1 866 2052 975 1130 3639 history2 7 0 1 history2 0 1 history2 0.1 7.2 22.3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7415 method *ASTM D7414	imit/base 151 0.4 250 0 2046 1043 943 5012 205 20 imit/base >30 >30 imit/base >25	current 240 0 126 <1 692 1563 772 880 2953 current 5 2 0 current 0.1 7.8 22.4 current	history1 284 0 140 <1 717 1418 646 916 2226 history1 6 0 2 history1 0.1 7.9 22.6 history1 17.6	history2 396 2 182 <1 866 2052 975 1130 3639 history2 7 0 1 history2 0.1 7.2 22.3 history2 15.6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation Base Number (BN)	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7415 method *ASTM D7414 *ASTM D7414	imit/base 151 0.4 250 0 2046 1043 943 5012 205 220 220 30 30 imit/base >22 30 225 12.5	current 240 0 126 <1 692 1563 772 880 2953 current 5 2 0 current 0.1 7.8 22.4 current 16.9 8.5	history1 284 0 140 <1 717 1418 646 916 2226 history1 6 0 2 history1 0.1 7.9 22.6 history1 17.6 8.3	history2 396 2 182 <1 866 2052 975 1130 3639 history2 7 0 1 history2 0.1 7.2 22.3 history2 15.6 9.0



0ct16/22

Mar8/23

Mav26/23

Jan 15/24

OIL ANALYSIS REPORT



VISUAL		method				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	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FI UID PROPERT	IFS	method	limit/base	current	historv1	history2
		monioa		Ganon	inotory i	inotory 2
Visc @ 100°C	cSt	ASTM D445	14.4	12.3	12.5	12.5
GRAPHS						

Ferrous Alloys



Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Certificate 12367

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