

OIL ANALYSIS REPORT

Sample Rating Trend





Component

Diesel Engine

CHEVRON DELO 400 SDE SAE 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

Elevated aluminum (AI) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. 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.

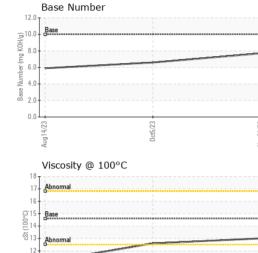
AL)						
•			2023	Oct2023 Nov20		
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0859283	WC0859247	WC0829022
Sample Date		Client Info		21 Nov 2023	05 Oct 2023	14 Aug 2023
Machine Age	mls	Client Info		56619	38589	20404
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ATTENTION
CONTAMINATIO	N	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	0.4
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	16	35	64
Chromium	ppm	ASTM D5185m	>20	1	3	5
Nickel	ppm	ASTM D5185m	>4	0	0	1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	17	52	90
Lead	ppm	ASTM D5185m	>40	<1	3	3
Copper	ppm	ASTM D5185m	>330	2	8	28
Tin	ppm	ASTM D5185m	>15	0	<1	3
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		250	159	44
Barium	ppm	ASTM D5185m		2	0	4
Molybdenum	ppm	ASTM D5185m		121	107	16
Manganese	ppm	ASTM D5185m		0	<1	5
Magnesium	ppm	ASTM D5185m		607	655	701
Calcium	ppm	ASTM D5185m		1442	1432	1238
Phosphorus	ppm	ASTM D5185m	760	657	643	669
Zinc	ppm	ASTM D5185m	800	803	815	811
Sulfur	ppm	ASTM D5185m	3000	2593	2319	2758
CONTAMINANTS	\$	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	9	14	42
Sodium	ppm	ASTM D5185m		0	3	4
Potassium	ppm	ASTM D5185m	>20	45	145	238
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	0.2	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	8.2	8.5	9.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.7	23.1	20.1
FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.2	18.1	16.2
Base Number (BN)	mg KOH/g	ASTM D2896	10	7.7	6.6	5.9



11 10 Aug14/23

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VISUAL



		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
0ct5/23	Nov21/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
0	Nov2	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Wa	ter scalar	*Visual	>0.2	NEG	NEG	NEG
		Free Water	scalar	*Visual		NEG	NEG	NEG
		FLUID PRO	PERTIES	method	limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	14.6	13.0	12.6	▲ 11.1
		GRAPHS						
		Ferrous Allo	ýS					
/23		60 - iron						
0ct5/23		50 -						
		40 30						
		1						
		20						
		10						
		0 L+	23		53			
		Aug 14/23	0ct5/23		Nov21/23			
		Non-ferrous			2			
		30 T	Metals					
		25 - copper						
		annonenten tin						
		20						
		la 15-						
		10						
		-						
		5-	Manual Colores	Carethanthanthanthanthanthantha	_			
		5 0 0			23			
		0014/23	0ct5/23	8498-1988-1988-1988-1984-1984-1984-1984-	ov21/23			
		5 0 EZI+LONY Viscostity			Nov21/23			
		Viscosity @				Base Number		
		Viscosity @			12.0	Pres		
		Viscosity @			12.0	Base		
		Viscosity @			12.0	Base		
		Viscosity @			12.0	Base		
		Viscosity @ ¹⁸ ¹⁸ ¹⁶ ¹⁶ ¹⁶ ¹⁶ ¹⁸ ⁶ ¹⁸ ⁶ ¹⁸ ⁶ ¹⁸ ⁶ ¹⁸ ⁶ ¹⁸ ⁶ ¹⁸ ⁶ ⁶ ¹⁸ ⁶ ⁶ ⁶ ⁶ ⁶ ⁶ ⁶ ⁶			12.0)- Base 		
		Viscosity @			12.0 (0) (0) HO XO Bull agun	Base		
		Viscosity @			12.0 (0)H 8.0 (0)H 8.	Base Base 		
		Viscosity @	100°C		12.0 (0)HO 8.0 Bull 36.0 Bull 36.0 B	Base	(23	
		Viscosity @			12.0 (0)HO 8.0 Bull 36.0 Bull 36.0 B	Base	0d5/23	
	aboratory	Viscosity @	100°C	Son Ave. Ca	12.0 (0)HOX Bul) 10.0 (0)HOX Bul) 14 9000 14 10 10 10 10 10 10 10 10 10 10 10 10 10	Base Base F		
	aboratory	Viscosity @	100°C		12.0 (0)HOX Bul) 10.0 (0)HOX Bul) 14 9000 14 10 10 10 10 10 10 10 10 10 10 10 10 10	Base Base F	rgon Truckin	g Inc MAG6
	aboratory Sample No. ab Number	Viscosity @	100°C	d :05 l	12.0 (0)HOX 60 4.0 EZ/1700W	Base Base F	rgon Truckin	g Inc MAG60 State Route 80
NG LABORATORY U	Sample No. .ab Number Inique Number	Viscosity @ ¹⁸ ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁰	100°C	d : 05 l ed : 06 l	12.0 (0)HOX 8.0 (0)HOX	Base Base F	r gon Truckin 11337	g Inc MAG6 State Route 80 Magnolia, C US 4464
NE LASORATORY U VICLASORATORY U ficate L2367 T	Sample No. Lab Number Inique Number Test Package	Viscosity @ ¹⁸ ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁰	100°C Egge ISA - 501 Madia Received Diagnost	d : 05 ed : 06 tician : We	12.0 10.0 10.0 10.0 10.0 10.0 8.0 10.0 1	Base Base F	r gon Truckin 11337 Cor	State Route 8 Magnolia, C US 446 Itact: Eddy Sm
FIGATE L2367 T discuss this sa	Sample No. Lab Number Inique Number Sest Package ample report,	Viscosity @ ¹⁸ ¹⁹ ¹⁹ ¹⁹ ¹⁹ ¹⁰	100°C Egg ISA - 501 Madia Received Diagnost Diagnost r Service at 1-8	d : 05 ed : 06 tician : Wes	12.0 10.0 10.0 10.0 10.0 8.0 10.0 8.0 10.0 10.0 8.0 10.	Base Base F	r gon Truckin 11337 Cor	g Inc MAG6 (State Route 8(Magnolia, C US 4464 itact: Eddy Smi nith@ergon.co

Submitted By: Eddy Smith Page 2 of 2