

OIL ANALYSIS REPORT

SAMPLE INFORMATION



NORMAL

Area Ama Machine Id AMA Component Port Main Engine Fluid CHEVRON DELO 710 LS (350 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 acceptable for the time in service.

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12015 Nov2015	Jan2017 Dec2017 Ma	y2018 Jun2019 Feb2020	Feb2023	
method				history2
Client Info		1.1.1.1.7.2.0.0.0.0	MM/M720020	
Client Info	N	MWM730822	MWM730830	MWM715446

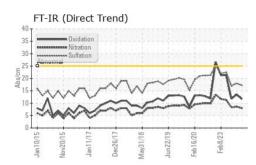
			IIIIII/Dase	current	TIISTOLA	
Sample Number		Client Info		MWM730822	MWM730830	MWM715446
Sample Date		Client Info		07 May 2024	07 Oct 2023	08 Aug 2023
Machine Age	hrs	Client Info		84995	80567	79844
Oil Age	hrs	Client Info		1146	1242	1200
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
		and the second	Provide Research		la factoria and	le'stan 0
CONTAMINATION	N	method	limit/base	current	history1	history2
Fuel		WC Method		<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	25	21	21
Chromium	ppm	ASTM D5185m		1	<1	<1
Nickel	ppm	ASTM D5185m	>2	1	<1	<1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m		3	2	2
Lead	ppm	ASTM D5185m	>18	8	11	10
Copper	ppm	ASTM D5185m		36	32	30
Tin			>14	8	7	6
Vanadium	ppm	ASTM D5185m	>14	o <1	<1	<1
Cadmium	ppm			<1		0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 38	history1 33	history2 33
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	38	33	33
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	38 0	33 0	33 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	38 0 49	33 0 44	33 0 43
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	38 0 49 <1	33 0 44 0	33 0 43 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	38 0 49 <1 24	33 0 44 0 16	33 0 43 0 12
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	38 0 49 <1 24 3519	33 0 44 0 16 3414	33 0 43 0 12 3355
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	limit/base	38 0 49 <1 24 3519 30	33 0 44 0 16 3414 17	33 0 43 0 12 3355 4
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	limit/base	38 0 49 <1 24 3519 30 16	33 0 44 0 16 3414 17 12	33 0 43 0 12 3355 4 0
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	limit/base	38 0 49 <1 24 3519 30 16 2520	33 0 44 0 16 3414 17 12 2086	33 0 43 0 12 3355 4 0 2066
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	limit/base	38 0 49 <1 24 3519 30 16 2520 current 4	33 0 44 0 16 3414 17 12 2086 history1	33 0 43 0 12 3355 4 0 2066 history2
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	limit/base	38 0 49 <1 24 3519 30 16 2520 current	33 0 44 0 16 3414 17 12 2086 history1 4	33 0 43 0 12 3355 4 0 2066 history2 4
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	limit/base >20 >75 >20	38 0 49 <1 24 3519 30 16 2520 current 4 1 3	33 0 44 0 16 3414 17 12 2086 history1 4 4 0	33 0 43 0 12 3355 4 0 2066 history2 4 4 4 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	ASTM D5185m ASTM D5185m	limit/base >20 >75 >20 20	38 0 49 <1 24 3519 30 16 2520 current 4 1 3 3 current	33 0 44 0 16 3414 17 12 2086 history1 4 4 0 bistory1	33 0 43 0 12 3355 4 0 2066 history2 4 4 4 0 bistory2
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 ppm	ASTM D5185m ASTM D5185m	limit/base >20 >75 >20 limit/base >3	38 0 49 <1 24 3519 30 16 2520 current 4 1 3 current 0.5	33 0 44 0 16 3414 17 12 2086 history1 4 4 4 0 history1 0.4	33 0 43 0 12 3355 4 0 2066 history2 4 4 4 0 bistory2 0.5
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	limit/base >20 >75 >20 limit/base >3 >20	38 0 49 <1 24 3519 30 16 2520 current 4 1 3 current 0.5 8.0	33 0 44 0 16 3414 17 12 2086 history1 4 4 4 0 history1 0.4 8.6	33 0 43 0 12 3355 4 0 2066 history2 4 4 4 0 bistory2 0.5 8.3
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	Imit/base >20 >75 >20 Imit/base >3 >20 >3 >20 >30	38 0 49 <1 24 3519 30 16 2520 current 4 1 3 current 0.5	33 0 44 0 16 3414 17 12 2086 history1 4 4 4 0 history1 0.4	33 0 43 0 12 3355 4 0 2066 history2 4 4 4 0 bistory2 0.5
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	limit/base >20 >75 >20 limit/base >3 >20	38 0 49 <1 24 3519 30 16 2520 current 4 1 3 current 0.5 8.0	33 0 44 0 16 3414 17 12 2086 history1 4 4 4 0 history1 0.4 8.6	33 0 43 0 12 3355 4 0 2066 history2 4 4 4 0 V history2 0.5 8.3
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	Imit/base >20 >75 >20 Imit/base >3 >20 >3 >20 >30	38 0 49 <1 24 3519 30 16 2520 <u>current</u> 4 1 3 <u>current</u> 0.5 8.0 17.2	33 0 44 0 16 3414 17 12 2086 history1 4 4 4 0 history1 0.4 8.6 18.0	33 0 43 0 12 3355 4 0 2066 history2 4 4 4 0 0 history2 0.5 8.3 17.0
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	limit/base >20 >75 >20 limit/base >3 >20 >30 >30	38 0 49 <1 24 3519 30 16 2520 current 4 1 3 current 0.5 8.0 17.2 current	33 0 44 0 16 3414 17 12 2086 history1 4 4 4 0 history1 0.4 8.6 18.0 history1	33 0 43 0 12 3355 4 0 2066 history2 4 4 4 4 0 0 history2 0.5 8.3 17.0 history2

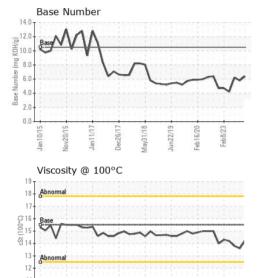


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OIL ANALYSIS REPORT





Dec26/17

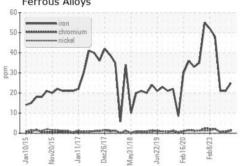
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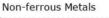
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Feb16/20 Feb 8/23

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
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	ΓIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.5	14.2	13.6	13.8
CDADUS						

Ferrous Alloys





Abno

Jan 10/15

: MWM730822

To discuss this sample report, contact Customer Service at 1-800-237-1369.

Nov20/1

Jan 11/17

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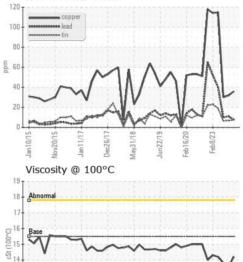
Laboratory

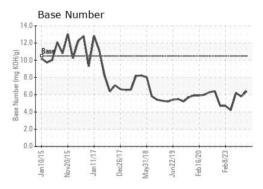
Sample No.

Lab Number : 06184010

Unique Number : 11035336

Test Package : MAR 2





: WearCheck USA - 501 Madison Ave., Cary, NC 27513 AMERICAN RIVER TRANSPORTATION CO. : 20 May 2024 P.O. BOX 2889 : 21 May 2024 ST. LOUIS, MO : 21 May 2024 - Sean Felton

US 63111 Contact: BRIAN GRIEWING brian.griewing@adm.com T: F: (314)481-5278

* - 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)

Feb8/23 -

Feb16/20

Received

Diagnosed

Tested

Report Id: AMESAI [WUSCAR] 06184010 (Generated: 05/22/2024 15:07:55) Rev: 1

Certificate 12367

Contact/Location: BRIAN GRIEWING - AMESAI