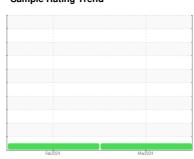


# **OIL ANALYSIS REPORT**

Sample Rating Trend







# FMC025

Component **Diesel Engine** 

Fluid

**DIESEL ENGINE OIL 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

There is no indication of any contamination in the oil.

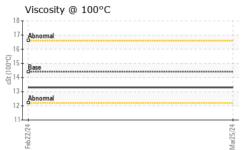
## **Fluid Condition**

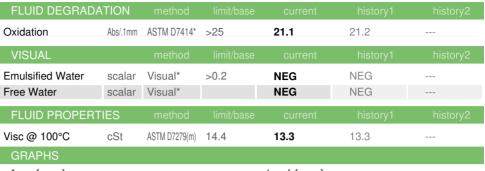
The condition of the oil is acceptable for the time in service.

INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3 <b>0.5</b> 0.4            Nitration         Abs/cm         ASTM D7624*         >20 <b>7.0</b> 6.9							
Client Info   WC0883794   WC0883798   WC	SAMPLE INFORM	MATION	method			history1	history2
Sample Date   Client Info   25 Mar 2024   22 Feb 2024					WC0883794		
Machine Age   hrs   Client Info   2126   1848     Coli   Changed   hrs   Client Info   250   250     Colin   Changed     Changed   Changed   Changed     Changed   Changed   Changed     Changed   Changed   Changed     Changed   Changed   Changed     Changed   Changed     Changed   Changed   Changed   Changed   Changed   Changed     Changed							
Oil Age		hre					
Contained   Client Info   Changed   NORMAL   NORMAL   NORMAL   Contained   NORMAL   NORMAL   Contained   NORMAL   NORMAL   Contained   C							
CONTAMINATION	-	1113					
CONTAMINATION	-		Oliotic IIIIo		_		
Fuel   WC Method   S5   <1.0   <1.0     Water   WC Method   >0.2   NEG   NEG     NEG   NEG   NEG     NEG   NEG   NEG     NEG   NEG   NEG     NEG   NEg   Neg		V	method	limit/base			
Water Glycol         WC Method WC Method         >0.2         NEG NEG         NEG		•					
WEAR METALS							
WEAR METALS				<i>&gt;</i> 0.∠			
					NEG		
Chromium	WEAR METALS			limit/base	current	history1	history2
Nickel	-						
Titanium		ppm	. ,				
Silver	Nickel	ppm	. ,	>4			
Aluminum	Titanium	ppm	ASTM D5185(m)		0		
Lead	Silver	ppm	ASTM D5185(m)	>3	0	0	
Copper	Aluminum	ppm	ASTM D5185(m)	>20	4	4	
Tin	Lead	ppm	ASTM D5185(m)	>40	<1	1	
Antimony	Copper	ppm	ASTM D5185(m)	>330	<1	<1	
Vanadium         ppm         ASTM D5185(m)         0         0            Beryllium         ppm         ASTM D5185(m)         0         0            Cadmium         ppm         ASTM D5185(m)         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         250         50         48            Barium         ppm         ASTM D5185(m)         10         0         0            Barium         ppm         ASTM D5185(m)         100         39         39            Manganese         ppm         ASTM D5185(m)         100         39         39            Magnesium         ppm         ASTM D5185(m)         450         509         494            Calcium         ppm         ASTM D5185(m)         3000         1713         1669            Phosphorus         ppm         ASTM D5185(m)         1350         866         830            Sulfur         ppm         ASTM D5185(m)         250         2043	Tin	ppm	ASTM D5185(m)	>15	0	0	
Beryllium	Antimony	ppm	ASTM D5185(m)		0	0	
Cadmium         ppm         ASTM D5185(m)         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         250         50         48            Barium         ppm         ASTM D5185(m)         10         0         0            Molybdenum         ppm         ASTM D5185(m)         100         39         39            Manganese         ppm         ASTM D5185(m)         100         39         39            Magnesium         ppm         ASTM D5185(m)         450         509         494            Calcium         ppm         ASTM D5185(m)         3000         1713         1669            Phosphorus         ppm         ASTM D5185(m)         1350         866         830            Zinc         ppm         ASTM D5185(m)         4250         2043         2108            Lithium         ppm         ASTM D5185(m)         >25         4         6            Sodium         ppm         ASTM D5185(m)	Vanadium	ppm	ASTM D5185(m)		0	0	
ADDITIVES	Beryllium	ppm	ASTM D5185(m)		0	0	
Boron	Cadmium	ppm	ASTM D5185(m)		0	0	
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185(m)         100         39         39            Manganese         ppm         ASTM D5185(m)         0         0            Magnesium         ppm         ASTM D5185(m)         450         509         494            Calcium         ppm         ASTM D5185(m)         3000         1713         1669            Phosphorus         ppm         ASTM D5185(m)         1150         734         724            Zinc         ppm         ASTM D5185(m)         1350         866         830            Sulfur         ppm         ASTM D5185(m)         4250         2043         2108            Lithium         ppm         ASTM D5185(m)         4250         2043         2108            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         4         6            Sodium         ppm         ASTM D5185(m)         >158         3         3            Potassium         ppm         ASTM D5185(m) </td <td>Boron</td> <td>ppm</td> <td>ASTM D5185(m)</td> <td>250</td> <td>50</td> <td>48</td> <td></td>	Boron	ppm	ASTM D5185(m)	250	50	48	
Manganese         ppm         ASTM D5185(m)         0         0            Magnesium         ppm         ASTM D5185(m)         450         509         494            Calcium         ppm         ASTM D5185(m)         3000         1713         1669            Phosphorus         ppm         ASTM D5185(m)         1150         734         724            Zinc         ppm         ASTM D5185(m)         1350         866         830            Sulfur         ppm         ASTM D5185(m)         4250         2043         2108            Lithium         ppm         ASTM D5185(m)         <1	Barium	ppm	ASTM D5185(m)	10	0	0	
Magnesium         ppm         ASTM D5185(m)         450         509         494            Calcium         ppm         ASTM D5185(m)         3000         1713         1669            Phosphorus         ppm         ASTM D5185(m)         1150         734         724            Zinc         ppm         ASTM D5185(m)         1350         866         830            Sulfur         ppm         ASTM D5185(m)         4250         2043         2108            Lithium         ppm         ASTM D5185(m)         4250         2043         2108            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         4         6            Sodium         ppm         ASTM D5185(m)         >158         3         3            Potassium         ppm         ASTM D5185(m)         >20         <1	Molybdenum	ppm	ASTM D5185(m)	100	39	39	
Calcium         ppm         ASTM D5185(m)         3000         1713         1669            Phosphorus         ppm         ASTM D5185(m)         1150         734         724            Zinc         ppm         ASTM D5185(m)         1350         866         830            Sulfur         ppm         ASTM D5185(m)         4250         2043         2108            Lithium         ppm         ASTM D5185(m)         <1	Manganese	ppm	ASTM D5185(m)		0	0	
Phosphorus         ppm         ASTM D5185(m)         1150         734         724            Zinc         ppm         ASTM D5185(m)         1350         866         830            Sulfur         ppm         ASTM D5185(m)         4250         2043         2108            Lithium         ppm         ASTM D5185(m)         <1	Magnesium	ppm	ASTM D5185(m)	450	509	494	
Zinc	Calcium	ppm	ASTM D5185(m)	3000	1713	1669	
Sulfur         ppm         ASTM D5185(m)         4250         2043         2108            Lithium         ppm         ASTM D5185(m)         4250         2043         2108            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         4         6            Sodium         ppm         ASTM D5185(m)         >158         3         3            Potassium         ppm         ASTM D5185(m)         >20         <1         1            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.5         0.4            Nitration         Abs/cm         ASTM D7624*         >20         7.0         6.9	Phosphorus	ppm	ASTM D5185(m)	1150	734	724	
Lithium         ppm         ASTM D5185(m)         <1         <1            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         4         6            Sodium         ppm         ASTM D5185(m)         >158         3         3            Potassium         ppm         ASTM D5185(m)         >20         <1	Zinc	ppm	ASTM D5185(m)	1350	866	830	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         4         6            Sodium         ppm         ASTM D5185(m)         >158         3         3            Potassium         ppm         ASTM D5185(m)         >20         <1	Sulfur	ppm	ASTM D5185(m)	4250	2043	2108	
Silicon         ppm         ASTM D5185(m)         >25         4         6            Sodium         ppm         ASTM D5185(m)         >158         3         3            Potassium         ppm         ASTM D5185(m)         >20         <1         1            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.5         0.4            Nitration         Abs/cm         ASTM D7624*         >20         7.0         6.9	Lithium	ppm	ASTM D5185(m)		<1	<1	
Sodium         ppm         ASTM D5185(m)         >158         3         3            Potassium         ppm         ASTM D5185(m)         >20         <1	CONTAMINANTS	;	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185(m)         >20         <1         1            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.5         0.4            Nitration         Abs/cm         ASTM D7624*         >20         7.0         6.9	Silicon	ppm	ASTM D5185(m)	>25	4	6	
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3 <b>0.5</b> 0.4            Nitration         Abs/cm         ASTM D7624*         >20 <b>7.0</b> 6.9	Sodium	ppm	ASTM D5185(m)	>158	3	3	
Soot %         %         ASTM D7844*         >3 <b>0.5</b> 0.4            Nitration         Abs/cm         ASTM D7624*         >20 <b>7.0</b> 6.9	Potassium		ASTM D5185(m)	>20	<1	1	
Nitration         Abs/cm         ASTM D7624*         >20         7.0         6.9	INFRA-RED		method	limit/base	current	history1	history2
Nitration         Abs/cm         ASTM D7624*         >20         7.0         6.9	Soot %	%	ASTM D7844*	>3	0.5	0.4	
	Nitration	Abs/cm	ASTM D7624*	>20		6.9	
	Sulfation						



# **OIL ANALYSIS REPORT**





Visc @ 100°C	cSt	ASTM D7279(m)	14.4	13.3	13.3	
GRAPHS						
Iron (ppm)				Lead (ppm	)	
Severe				Severe		
150 +						
Abasanal				Abnormal		
50				20		
			Mar25/24	- Feb22/24		Mar25/24
			Mar2			Mar2
Aluminum (ppm)	)			Chromium 50 T	(ppm)	
Severe				Severe		
30				30		
Abnormal 20 + a				Abnormal		
10+				10+		
0				0		
Feb22/24			Mar25/24 -	, Feb22/24 -		Mar25/24 -
			Mar		,	Mar
Copper (ppm)				Silicon (ppr	m) 	
Severe  350 Abnormal				70 <b>-</b>		
250				50		
150				8 40 Abnormal		
100				20		
0				0		
Feb22/24			Mar25/24	Feb22/24		Mar25/24
<sup>™</sup> Viscosity @ 100°	C		Σ	≖ Soot %		≥
18 T :				6.0		
17 Abnormal				5.0 - Severe		
(C) 15 Base 314				4.0 82 3.0 - Abnormal		
				2.0		
Abnormal				1.0		
11 2				0.0		5
Feb22/24			Mar25/24	Feb22/24		Mar25/24
_			~	-		_



**CALA** ISO 17025:2017 Accredited Laboratory

Report Id: KIR370KIR [WCAMIS] 02625554 (Generated: 04/01/2024 13:04:43) Rev: 1

Laboratory Sample No.

Lab Number : 02625554

: WC0883794 Unique Number : 5750673 Test Package : MOB 1

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received **Tested** 

Diagnosed

: 01 Apr 2024 : 01 Apr 2024

: 01 Apr 2024 - Wes Davis

Agnico Eagle Canada 1350 Government Rd. W, MACASSA COMPLEX

Kirkland Lake, ON CA P2N 3J1 Contact: Mitch Lamontagne

To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.

Validity of results and interpretation are based on the sample and information as supplied.

AEM\_KL\_macassaoilsampleresults@agnicoeagle.com T: (705)567-5208

Contact/Location: Mitch Lamontagne - KIR370KIR

F: (705)567-5221