

# **OIL ANALYSIS REPORT**

Sample Rating Trend





CATERPILLAR 30-134 (S/N EEH00543)

New (Unused) Oil

PETRO CANADA ENVIRON MV 46 (260 LTR)

Sample Number       Client Info       PC0069823           Sample Date       Client Info       16 Oct 2023           Machine Age       hrs       Client Info       15501           Oil Age       hrs       Client Info       5           Oil Age       hrs       Client Info       5           Oil Changed       Client Info       N/A           Sample Status       NORMAL           CONTAMINATION       method       limit/base       current       history1       history2         Water       WC Method       NEG	RON MV 46 (26	0 LTR)			Oct2023		
Sample Date         Client Info         16 Oct 2023             Machine Age         hrs         Client Info         15501             Oil Age         hrs         Client Info         5             Sample Status         Client Info         N/A             CONTAMINATION         method         Imit/base         current         history1         history2           Water         WC Method         NEG              WEAR METALS         method         Imit/base         current         history1         history2           Iron         ppm         ASTM D518(m)         >5         0             Nickel         ppm         ASTM D518(m)         >5         0             Silver         ppm         ASTM D518(m)         >5         0             Silver         ppm         ASTM D518(m)         >5         0             Auminum         ppm         ASTM D518(m)         >5         0             Silver         ppm <th>SAMPLE INFOF</th> <th>MATION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	SAMPLE INFOF	MATION	method	limit/base	current	history1	history2
Sample Date         Client Info         16 Oct 2023             Machine Age         hrs         Client Info         15501             Dil Age         hrs         Client Info         5             Sample Status         Client Info         NA             CONTAMINATION         method         Imit/base         current         history1         history2           Water         WC Method         NEG              WEAR METALS         method         Imit/base         current         history1         history2           Iron         ppm         ASTM 0585(m)         >5         0             Trainium         ppm         ASTM 0585(m)         >5         0             Silver         ppm         ASTM 0585(m)         >5         0             Copper         ppm         ASTM 0585(m)         >5         0             Chromium         ppm         ASTM 0585(m)         >5         0             Silver         ppm <td>Sample Number</td> <td></td> <td>Client Info</td> <td></td> <td>PC0069823</td> <td></td> <td></td>	Sample Number		Client Info		PC0069823		
Machine Age         hrs         Client Info         15501             Dil Age         hrs         Client Info         5             Sample Status         Client Info         N/A             CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         NEG             WEAR METALS         method         limit/base         current         history1         history2           ron         ppm         ASTM D5186(m)         >5         0             Nickel         ppm         ASTM D5186(m)         >5         0             Vickel         ppm         ASTM D5186(m)         >5         0             AstM D5186(m)         >5         0               AstM D5186(m)         >5         0              AstM D5186(m)         >5         0              AstM D5186(m)         0 <t< td=""><td></td><td></td><td>Client Info</td><td></td><td>16 Oct 2023</td><td></td><td></td></t<>			Client Info		16 Oct 2023		
Dil Age         hrs         Client Info         5             Dil Changed         Client Info         N/A             Sample Status         Imit/base         current         history1         history2           Water         WC Method         NEG             WEAR METALS         method         imit/base         current         history1         history2           VeArer         WC Method         NEG              VEAR METALS         method         imit/base         current         history1         history2           ron         ppm         ASTM D5185(m)         >5         0             Vickel         ppm         ASTM D5185(m)         >5         0             Rauminum         ppm         ASTM D5185(m)         >5         0             Anumonup         ppm         ASTM D5185(m)         >5         0             Anumonup         ppm         ASTM D5185(m)         0              Anumonup         ppm	-	hrs			15501		
Dil Changed         Client Info         N/A             Sample Status         Imilibase         Current         history1         history2           CONTAMINATION         method         Imilibase         current         history1         history2           Water         WC Method         NEG             WEAR METALS         method         Imilibase         current         history1         history2           ron         ppm         ASTM D5185(m)         >5         0             Silver         ppm         ASTM D5185(m)         >5         0             Aluminum         ppm         ASTM D5185(m)         >5         0             Silver         ppm         ASTM D5185(m)         >5         0             Auminum         ppm         ASTM D5185(m)         >5         0             Auminum         ppm         ASTM D5185(m)         5         0             Anadium         ppm         ASTM D5185(m)         0             Soron         ppm	Dil Age	hrs	Client Info		5		
CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         NEG             WEAR METALS         method         limit/base         current         history1         history2           ron         ppm         ASTM D5185(m)         >5         0             Chromium         ppm         ASTM D5185(m)         >5         0             Silver         ppm         ASTM D5185(m)         >5         0             Aluminum         ppm         ASTM D5185(m)         >5         0             Aluminum         ppm         ASTM D5185(m)         >5         0             Aluminum         ppm         ASTM D5185(m)         >5         0             Autimony         ppm         ASTM D5185(m)         >5         0             Autimony         ppm         ASTM D5185(m)         0              Autimony         ppm         ASTM D5185(m)         0	•				N/A		
Water         WC Method         NEG             WEAR METALS         method         imit/base         current         history1         history2           iron         ppm         ASTM D5185(m)         >5         0             Ohromium         ppm         ASTM D5185(m)         >5         0             Nickel         ppm         ASTM D5185(m)         >5         0             Silver         ppm         ASTM D5185(m)         >5         0             ead         ppm         ASTM D5185(m)         >5         0             Copper         ppm         ASTM D5185(m)         >5         0             Antimony         ppm         ASTM D5185(m)         0              Antimony         ppm         ASTM D5185(m)         0              Antimony         ppm         ASTM D5185(m)         0              Copper         ppm         ASTM D5185(m)         0	Sample Status				NORMAL		
WEAR METALS         method         limit/base         current         history1         history2           iron         ppm         ASTM D5185(m)         >5         0             Chromium         ppm         ASTM D5185(m)         >5         0             Vickel         ppm         ASTM D5185(m)         >5         0             Silver         ppm         ASTM D5185(m)         >5         0             Aluminum         ppm         ASTM D5185(m)         >5         0             Copper         ppm         ASTM D5185(m)         >5         0             Copper         ppm         ASTM D5185(m)         >5         0             Antimony         ppm         ASTM D5185(m)         0              Antimony         ppm         ASTM D5185(m)         0              Cadmium         ppm         ASTM D5185(m)         0              ADDITVES         method         imit/base         <	CONTAMINAT	TION	method	limit/base	current	history1	history2
ron         ppm         ASTM D5185(m)         >5         0             Chromium         ppm         ASTM D5185(m)         >5         0             Vickel         ppm         ASTM D5185(m)         >5         0             Silver         ppm         ASTM D5185(m)         >5         0             Aluminum         ppm         ASTM D5185(m)         >5         0             Aluminum         ppm         ASTM D5185(m)         >5         0             Lead         ppm         ASTM D5185(m)         >5         0             Copper         ppm         ASTM D5185(m)         >5         0             Antimony         ppm         ASTM D5185(m)         0              Cadmium         ppm         ASTM D5185(m)         0             ADDITVES         method         imit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)	Water		WC Method		NEG		
Dromium         ppm         ASTM D5185(m)         >5         0             Nickel         ppm         ASTM D5185(m)         >5         0             Silver         ppm         ASTM D5185(m)         >5         0             Aluminum         ppm         ASTM D5185(m)         >5         0             Lead         ppm         ASTM D5185(m)         >5         0             Copper         ppm         ASTM D5185(m)         >5         0             Copper         ppm         ASTM D5185(m)         >5         0             Astm D5185(m)         >5         0              Astm D5185(m)         0               Cadmium         ppm         ASTM D5185(m)         0              ASTM D5185(m)         0         <-1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel         ppm         ASTM D5185(m)         >5         0             Fitanium         ppm         ASTM D5185(m)         >5         <1	ron	ppm	ASTM D5185(m)	>5	0		
Titanium         ppm         ASTM D5188(m)         0             Silver         ppm         ASTM D5188(m)         >5         <1	Chromium	ppm	ASTM D5185(m)	>5	0		
Silver         ppm         ASTM D5185(m)         >5         <1             Numinum         ppm         ASTM D5185(m)         >5         0             Lead         ppm         ASTM D5185(m)         >5         0             Copper         ppm         ASTM D5185(m)         >5         0             Copper         ppm         ASTM D5185(m)         >5         0             Antimony         ppm         ASTM D5185(m)         0              Anadium         ppm         ASTM D5185(m)         0              Saruim         ppm         ASTM D5185(m)         0              Addium         ppm         ASTM D5185(m)         0         <1	Nickel	ppm	ASTM D5185(m)	>5	0		
Numinum         ppm         ASTM D5185(m)         >5         0             Lead         ppm         ASTM D5185(m)         >5         0             Copper         ppm         ASTM D5185(m)         >5         0             Antimony         ppm         ASTM D5185(m)         >5         0             Antimony         ppm         ASTM D5185(m)         0              Antimony         ppm         ASTM D5185(m)         0              Antimony         ppm         ASTM D5185(m)         0              Antimony         ppm         ASTM D5185(m)         0              Bary         ppm         ASTM D5185(m)         0         <1	Fitanium	ppm	ASTM D5185(m)		0		
Lead         ppm         ASTM D5185(m)         >5         0             Copper         ppm         ASTM D5185(m)         >5         0             Antimony         ppm         ASTM D5185(m)         >5         0             Antimony         ppm         ASTM D5185(m)         0             Antimony         ppm         ASTM D5185(m)         0             Baryllium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0         -1             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0         -1             Adaganese         ppm         ASTM D5185(m)         0              Calcium         ppm         ASTM D5185(m)         0	Silver	ppm	ASTM D5185(m)	>5	<1		
CopperppmASTM D5185(m)>5<1TinppmASTM D5185(m)>50AntimonyppmASTM D5185(m)0VanadiumppmASTM D5185(m)0BerylliumppmASTM D5185(m)0CadmiumppmASTM D5185(m)0ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185(m)0<1	Aluminum	ppm	ASTM D5185(m)	>5	0		
Tin         ppm         ASTM D5185(m)         >5         0             Antimony         ppm         ASTM D5185(m)         0              Antimony         ppm         ASTM D5185(m)         0              Baryllium         ppm         ASTM D5185(m)         0              Cadmium         ppm         ASTM D5185(m)         0              ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0         <1	_ead	ppm	ASTM D5185(m)	>5	0		
Antimony         ppm         ASTM D5185(m)         0             Vanadium         ppm         ASTM D5185(m)         0             Beryllium         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0         <1	Copper	ppm	ASTM D5185(m)	>5	<1		
Vanadium         ppm         ASTM D5185(m)         0             Baryllium         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0         <1             Barium         ppm         ASTM D5185(m)         0         <1             Barium         ppm         ASTM D5185(m)         0         <1             Molybdenum         ppm         ASTM D5185(m)         0         0             Maganesium         ppm         ASTM D5185(m)         0         <1             Calcium         ppm         ASTM D5185(m)         0         4             Calcium         ppm         ASTM D5185(m)         0         3             Sulfur         ppm         ASTM D5185(m)         <1 <t< td=""><td>Гin</td><td>ppm</td><td>ASTM D5185(m)</td><td>&gt;5</td><td>0</td><td></td><td></td></t<>	Гin	ppm	ASTM D5185(m)	>5	0		
Baryllium         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0         <1             Barium         ppm         ASTM D5185(m)         0         <1             Molybdenum         ppm         ASTM D5185(m)         0         <1             Maganese         ppm         ASTM D5185(m)         0         0             Magnesium         ppm         ASTM D5185(m)         0         4             Calcium         ppm         ASTM D5185(m)         0         4             Dasphorus         ppm         ASTM D5185(m)         0         3             Sulfur         ppm         ASTM D5185(m)         1420         1339             CONTAMINANTS         method         limit/base         current </td <td>Antimony</td> <td>ppm</td> <td>ASTM D5185(m)</td> <td></td> <td>0</td> <td></td> <td></td>	Antimony	ppm	ASTM D5185(m)		0		
Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0         <1	/anadium	ppm	ASTM D5185(m)		0		
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         0         <1	Beryllium	ppm	ASTM D5185(m)		0		
Boron         ppm         ASTM D5185(m)         0         <1             Barium         ppm         ASTM D5185(m)         0         <1	Cadmium	ppm	ASTM D5185(m)		0		
Barium         ppm         ASTM D5185(m)         0         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185(m)         0         0             Manganese         ppm         ASTM D5185(m)         0         0             Magnesium         ppm         ASTM D5185(m)         0         <1	Boron	ppm	ASTM D5185(m)	0	<1		
Manganese         ppm         ASTM D5185(m)         0         0             Magnesium         ppm         ASTM D5185(m)         0         <1	Barium	ppm	ASTM D5185(m)	0	<1		
Magnesium         ppm         ASTM D5185(m)         0         <1             Calcium         ppm         ASTM D5185(m)         0         4             Phosphorus         ppm         ASTM D5185(m)         650         622             Zinc         ppm         ASTM D5185(m)         0         3             Sulfur         ppm         ASTM D5185(m)         1420         1339             Lithium         ppm         ASTM D5185(m)         1420         1339             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >15         0             Sodium         ppm         ASTM D5185(m)         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0             Nitration         Abs/cm         ASTM D7624*	Nolybdenum	ppm	ASTM D5185(m)	0	0		
Dalcium         ppm         ASTM D5185(m)         0         4             Phosphorus         ppm         ASTM D5185(m)         650         622             Zinc         ppm         ASTM D5185(m)         0         3             Sulfur         ppm         ASTM D5185(m)         1420         1339             Lithium         ppm         ASTM D5185(m)         1420         1339             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >15         0             Sodium         ppm         ASTM D5185(m)         >20         0             Potassium         ppm         ASTM D5185(m)         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0             Nitration         Abs/cm         ASTM D7624*	Manganese	ppm	ASTM D5185(m)	0	0		
Data         ppm         ASTM D5185(m)         0         4             Phosphorus         ppm         ASTM D5185(m)         650         622             Zinc         ppm         ASTM D5185(m)         0         3             Sulfur         ppm         ASTM D5185(m)         1420         1339             Lithium         ppm         ASTM D5185(m)         1420         1339             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >15         0             Sodium         ppm         ASTM D5185(m)         >20         0             Potassium         ppm         ASTM D5185(m)         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0             Nitration         Abs/cm         ASTM D7624*	Magnesium	ppm	ASTM D5185(m)	0	<1		
Phosphorus         ppm         ASTM D5185(m)         650         622             Zinc         ppm         ASTM D5185(m)         0         3             Sulfur         ppm         ASTM D5185(m)         1420         1339             Lithium         ppm         ASTM D5185(m)         1420         1339             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >15         0             Sodium         ppm         ASTM D5185(m)         >20         0             Potassium         ppm         ASTM D5185(m)         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0             Nitration         Abs/cm         ASTM D7624*         1.9	Calcium		ASTM D5185(m)	0	4		
Zinc         ppm         ASTM D5185(m)         0         3             Sulfur         ppm         ASTM D5185(m)         1420         1339             Lithium         ppm         ASTM D5185(m)         1420         1339             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >15         0             Sodium         ppm         ASTM D5185(m)         >15         0             Potassium         ppm         ASTM D5185(m)         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0             Nitration         Abs/cm         ASTM D7624*         1.9	Phosphorus		ASTM D5185(m)	650	622		
Sulfur         ppm         ASTM D5185(m)         1420         1339             Lithium         ppm         ASTM D5185(m)         1420         1339             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >15         0             Sodium         ppm         ASTM D5185(m)         >15         0             Sodium         ppm         ASTM D5185(m)         >20         0             Potassium         ppm         ASTM D5185(m)         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0             Witration         Abs/cm         ASTM D7624*         1.9			. ,	0	3		
Lithium         ppm         ASTM D5185(m)         <1             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >15         0             Sodium         ppm         ASTM D5185(m)         >15         0             Sodium         ppm         ASTM D5185(m)         >20         0             Potassium         ppm         ASTM D5185(m)         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0             Nitration         Abs/cm         ASTM D7624*         1.9	Sulfur						
Silicon         ppm         ASTM D5185(m)         >15         0             Sodium         ppm         ASTM D5185(m)         <1							
Sodium         ppm         ASTM D5185(m)         <1             Potassium         ppm         ASTM D5185(m)         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0             Nitration         Abs/cm         ASTM D7624*         1.9	CONTAMINAN	NTS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185(m)         >20         0             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         0             Nitration         Abs/cm         ASTM D7624*         1.9	Silicon	ppm	ASTM D5185(m)	>15	0		
INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     ASTM D7844*     0         Nitration     Abs/cm     ASTM D7624*     1.9	Sodium	ppm	ASTM D5185(m)		<1		
Soot %         %         ASTM D7844*         0             Nitration         Abs/cm         ASTM D7624*         1.9	Potassium	ppm	ASTM D5185(m)	>20	0		
Nitration         Abs/cm         ASTM D7624*         1.9	INFRA-RED		method	limit/base	current	history1	history2
	Soot %	%	ASTM D7844*		0		
Sulfation         Abs/.1mm         ASTM D7415*         18.7	Nitration	Abs/cm	ASTM D7624*		1.9		
	Sulfation	Abs/.1mm	ASTM D7415*		18.7		

Recommendation This is the baseline readout on this new (unused)

oil. The fluid is suitable for service.

## Wear

{not applicable}

### Contamination

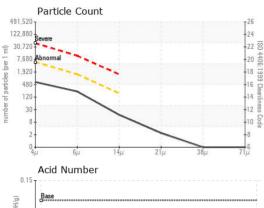
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. There is no indication of any contamination in the new (unused) oil.

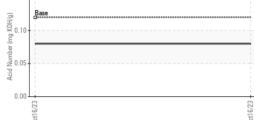
#### Fluid Condition

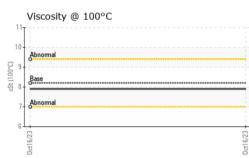
The AN level is acceptable for this fluid. The condition of the oil is suitable for service.

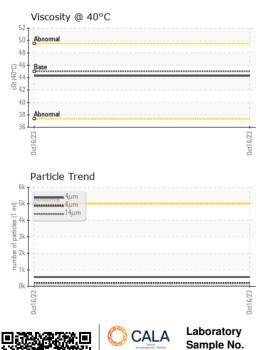


## **OIL ANALYSIS REPORT**









FLUID CLEANL	INESS	method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	561		
Particles >6µm		ASTM D7647	>1300	196		
Particles >14µm		ASTM D7647	>160	15		
Particles >21µm		ASTM D7647	>40	2		
Particles >38µm		ASTM D7647	>10	0		
Particles >71µm		ASTM D7647	>3	0		
Oil Cleanliness		ISO 4406 (c)	>19/17/14	16/15/11		
FLUID DEGRAD	DATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*		11.0		
Acid Number (AN)	mg KOH/g	ASTM D974*	0.12	0.08		
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE		
Yellow Metal	scalar	Visual*	NONE	NONE		
Precipitate	scalar	Visual*	NONE	NONE		
Silt	scalar	Visual*	NONE	NONE		
Debris	scalar	Visual*	NONE	NONE		
Sand/Dirt	scalar	Visual*	NONE	NONE		
Appearance	scalar	Visual*	NORML	NORML		
Odor	scalar	Visual*	NORML	NORML		
Emulsified Water	scalar	Visual*		NEG		
Free Water	scalar	Visual*		NEG		
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	45.0	44.3		
Visc @ 100°C	cSt	ASTM D7279(m)	8.2	7.9		
Viscosity Index (VI)	Scale	ASTM D2270*	158	150		
SAMPLE IMAG	iES	method	limit/base	current	history1	history2



: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 LES ENTREPRISES PEC Sample No. : PC0069823 Received : 04 Dec 2023 152 CHEMIN DE SAINT-EDGAR Lab Number : 02600477 Diagnosed : 05 Dec 2023 NEW RICHMOND, QC ISO 17025:2017 Accredited Laboratory Unique Number : 5685557 Diagnostician : Kevin Marson CA GOC 2B0 Test Package : IND 2 (Additional Tests: FT-IR, ICP-NewOil, KV100, VI) Contact: Service Manager To discuss this sample report, contact Customer Service at 1-800-268-2131. info@lepec.ca Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T: (418)534-3777 Validity of results and interpretation are based on the sample and information as supplied. F: