

# **OIL ANALYSIS REPORT**

NO UNIT PC0048715

**Right Unknown Component** 

NOT GIVEN (--- GAL)

# Sample Rating Trend



## **DIAGNOSIS**

### Recommendation

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. We advise that you check all areas where dirt can enter the system. We recommend that you drain the sample from the component if this has not already been done. We recommend an early resample to monitor this condition. Please specify the brand, type, and viscosity of the oil on your next sample. Please provide more complete information on your next sample. Please specify the component make and model with your next sample.

### Wear

Component wear rates appear to be normal (unconfirmed).

### Contamination

There is a moderate concentration of dirt present in the sample.

### **Fluid Condition**

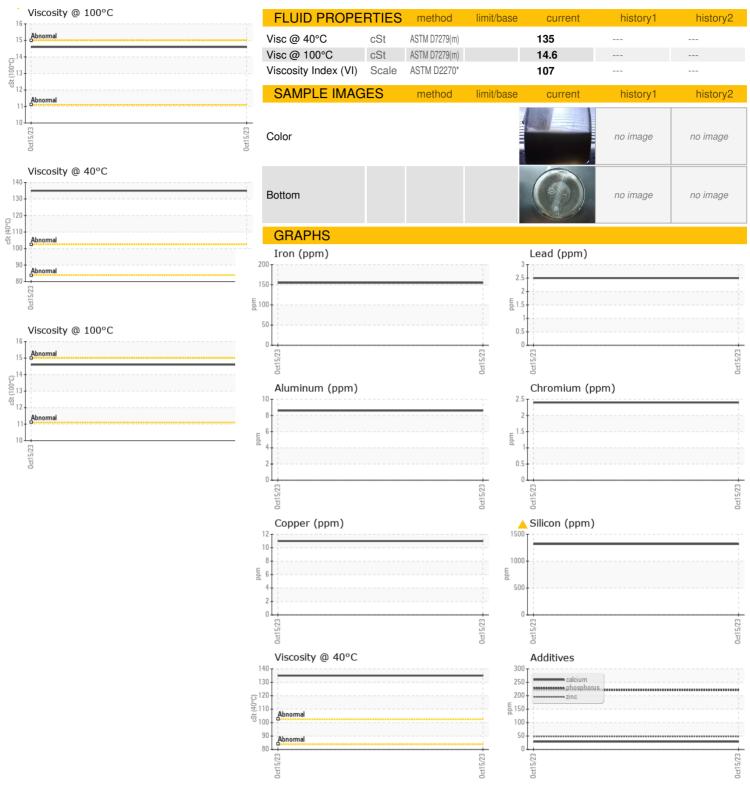
The sample is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION method   Imilibase   current   history1   history2					Oct2023		
Sample Number   Client Info   PC0048715	CAMPLE INFOR	NANTION	l mothod	limit/baco	ourront	history1	history?
Sample Date   Client Info   0   15 Oct 2023         Machine Age   hrs   Client Info   0		IVIA I ION		IIIIIIVDase		HISTORY	HISTOLA
Machine Age         hrs         Client Info         0							
Oil Changed Oil Changed         Client Info         N/A             Sample Status         Method Imit/base         current         history1         history2           Iron         ppm         ASTM D5185/m         155             Chromium         ppm         ASTM D5185/m         -1             Nickel         ppm         ASTM D5185/m         -1             Silver         ppm         ASTM D5185/m         -1             Aluminum         ppm         ASTM D5185/m         9             Aluminum         ppm         ASTM D5185/m         2             Lead         ppm         ASTM D5185/m         9             Lead         ppm         ASTM D5185/m         0             Tin         ppm         ASTM D5185/m         0             Vanadium         ppm         ASTM D5185/m         0             Peryllium         ppm         ASTM D5185/m         0             <							
Oil Changed Sample Status         Client Info         N/A         ABNORMAL            WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM 05185(m)         155             Chromium         ppm         ASTM 05185(m)         <1					-		
WEAR METALS	•	hrs			-		
WEAR METALS			Client Info				
Iron	Sample Status				ABNORMAL		
Chromium         ppm         ASTM D5185m)         2             Nickel         ppm         ASTM D5185m)         <1             Tittanium         ppm         ASTM D5185m)         <1             Silver         ppm         ASTM D5185m)         <1             Aluminum         ppm         ASTM D5185m)         9             Aluminum         ppm         ASTM D5185m)         9             Lead         ppm         ASTM D5185m)         0             Copper         ppm         ASTM D5185m)         0             Antimony         ppm         ASTM D5185m)         0             Antimony         ppm         ASTM D5185m)         0             Vanadium         ppm         ASTM D5185m)         0             Cadmium         ppm         ASTM D5185m)         2             Barium         ppm         ASTM D5185m)         3	WEAR METAL	.S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185(m)		155		
Nickel	Chromium	ppm	ASTM D5185(m)		2		
Titanium         ppm         ASTM D5185m)         <1	Nickel	ppm	ASTM D5185(m)		<1		
Silver	Titanium		ASTM D5185(m)		<1		
Aluminum	Silver		ASTM D5185(m)		<1		
Lead         ppm         ASTM D5185(m)         2             Copper         ppm         ASTM D5185(m)         11             Tin         ppm         ASTM D5185(m)         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)         2             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         3             Barium         ppm         ASTM D5185(m)         3             Manganese         ppm         ASTM D5185(m)         29	Aluminum	ppm	ASTM D5185(m)		9		
Copper	Lead	ppm	ASTM D5185(m)		2		
Tin	Copper		ASTM D5185(m)		11		
Antimony	• •		, ,		<1		
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)         2             Barium         ppm         ASTM D5185(m)         3             Molybdenum         ppm         ASTM D5185(m)         0             Manganese         ppm         ASTM D5185(m)         2             Magnesium         ppm         ASTM D5185(m)         2             Manganesium         ppm         ASTM D5185(m)         29             Phosphorus         ppm         ASTM D5185(m)         221             Zinc         ppm         ASTM D5185(m)         19533             Sulfur         ppm         ASTM D5185(m)         2         1319 <td>Antimony</td> <td></td> <td>ASTM D5185(m)</td> <td></td> <td>0</td> <td></td> <td></td>	Antimony		ASTM D5185(m)		0		
Beryllium	•		. ,		0		
Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         2             Barium         ppm         ASTM D5185(m)         0             Molybdenum         ppm         ASTM D5185(m)         0             Manganese         ppm         ASTM D5185(m)         2             Magnesium         ppm         ASTM D5185(m)         29             Calcium         ppm         ASTM D5185(m)         29             Phosphorus         ppm         ASTM D5185(m)         221             Zinc         ppm         ASTM D5185(m)         48             Sulfur         ppm         ASTM D5185(m)         19533             Lithium         ppm         ASTM D5185(m)         2             CONTAMINANTS         method         limit/base         current         h	Bervllium		. ,		0		
Boron	•		. ,		0		
Boron	ADDITIVES		method	limit/base	current	history1	history2
Barium	Boron	nnm	ASTM D5185(m)		2		
Molybdenum         ppm         ASTM D5185(m)         0             Manganese         ppm         ASTM D5185(m)         2             Magnesium         ppm         ASTM D5185(m)         29             Calcium         ppm         ASTM D5185(m)         221             Phosphorus         ppm         ASTM D5185(m)         48             Zinc         ppm         ASTM D5185(m)         48             Sulfur         ppm         ASTM D5185(m)         2             Lithium         ppm         ASTM D5185(m)         2             CONTAMINANTS         method         limit/base         current         history1         history2           CONTAMINANTS         method         limit/base         current         history1         history2           CONTAMINANTS         method         limit/base         current         history1         history2           ViSula         ppm         ASTM D5185(m)         5             Solium         ppm         ASTM D5185(m)							
Manganese         ppm         ASTM D5185(m)         3             Magnesium         ppm         ASTM D5185(m)         2             Calcium         ppm         ASTM D5185(m)         29             Phosphorus         ppm         ASTM D5185(m)         221             Zinc         ppm         ASTM D5185(m)         48             Sulfur         ppm         ASTM D5185(m)         19533             Lithium         ppm         ASTM D5185(m)         2             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         5             Sodium         ppm         ASTM D5185(m)         5             Potassium         ppm         ASTM D5185(m)         5             VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         Visual*         NONE			. ,		_		
Magnesium         ppm         ASTM D5185(m)         2             Calcium         ppm         ASTM D5185(m)         29             Phosphorus         ppm         ASTM D5185(m)         221             Zinc         ppm         ASTM D5185(m)         48             Sulfur         ppm         ASTM D5185(m)         19533             Lithium         ppm         ASTM D5185(m)         2             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         5             Sodium         ppm         ASTM D5185(m)         5             Potassium         ppm         ASTM D5185(m)         5              VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         Visual*         NONE         LIGHT             Yellow Metal         scalar	-		. ,				
Calcium         ppm         ASTM D5185(m)         29             Phosphorus         ppm         ASTM D5185(m)         221             Zinc         ppm         ASTM D5185(m)         19533             Sulfur         ppm         ASTM D5185(m)         2             Lithium         ppm         ASTM D5185(m)         2             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         5             Sodium         ppm         ASTM D5185(m)         5             Potassium         ppm         ASTM D5185(m)         >20         3             VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         Visual*         NONE         LIGHT             Yellow Metal         scalar         Visual*         NONE         NONE             Precipitate	•				_		
Phosphorus         ppm         ASTM D5185(m)         221             Zinc         ppm         ASTM D5185(m)         48             Sulfur         ppm         ASTM D5185(m)         19533             Lithium         ppm         ASTM D5185(m)         2             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         5             Sodium         ppm         ASTM D5185(m)         >20         3             Potassium         ppm         ASTM D5185(m)         >20         3             VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         Visual*         NONE         LIGHT             Yellow Metal         scalar         Visual*         NONE         NONE             Precipitate         scalar         Visual*         NONE         NONE	-		. ,		_		
Zinc         ppm         ASTM D5185(m)         48             Sulfur         ppm         ASTM D5185(m)         19533             Lithium         ppm         ASTM D5185(m)         2             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         5             Sodium         ppm         ASTM D5185(m)         >20         3             Potassium         ppm         ASTM D5185(m)         >20         3             VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         Visual*         NONE         current         history1         history2           White Metal         scalar         Visual*         NONE         NONE             Yellow Metal         scalar         Visual*         NONE         NONE             Precipitate         scalar         Visual*         NONE         NONE         -			, ,				
Sulfur         ppm         ASTM D5185(m)         19533             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         ▲ 1319             Sodium         ppm         ASTM D5185(m)         >20         3             Potassium         ppm         ASTM D5185(m)         >20         3             VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         Visual*         NONE         LIGHT             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*         NORML			. ,				
Lithium         ppm         ASTM D5185(m)         2             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         ▲         1319             Sodium         ppm         ASTM D5185(m)         5             Potassium         ppm         ASTM D5185(m)         >20         3             VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         Visual*         NONE         LIGHT             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*         NORML	-		. ,				
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         ▲ 1319             Sodium         ppm         ASTM D5185(m)         >20         3             Potassium         ppm         ASTM D5185(m)         >20         3             VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         Visual*         NONE         LIGHT             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*         NORML         NORML             Appearance         scalar         Visual*							
Silicon         ppm         ASTM D5185(m)         ▲ 1319             Sodium         ppm         ASTM D5185(m)         5             Potassium         ppm         ASTM D5185(m)         >20         3             VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         Visual*         NONE         LIGHT             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*         NORML         NORML             Appearance         scalar         Visual*         NORML         NORML             Codor         scalar         Visual*							
Sodium         ppm         ASTM D5185(m)         5             Potassium         ppm         ASTM D5185(m)         >20         3             VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         Visual*         NONE         LIGHT             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         NORML             Appearance         scalar         Visual*         NORML         NORML             Codor         scalar         Visual*         NORML         NORML             Free Water         scalar         Visual*	CONTAMINAN	115	method	limit/base	current	history1	history2
VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         Visual*         NONE         LIGHT             Yellow Metal         scalar         Visual*         NONE         NONE             Precipitate         scalar         Visual*         NONE         NONE             Silt         scalar         Visual*         NONE         LIGHT             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	Silicon	ppm	ASTM D5185(m)		<u> </u>		
VISUAL         method         limit/base         current         history1         history2           White Metal         scalar         Visual*         NONE         LIGHT             Yellow Metal         scalar         Visual*         NONE         NONE             Precipitate         scalar         Visual*         NONE         NONE             Silt         scalar         Visual*         NONE         LIGHT             Debris         scalar         Visual*         NONE         NONE             Sand/Dirt         scalar         Visual*         NORM         NORML             Appearance         scalar         Visual*         NORML         NORML             Codor         scalar         Visual*         NORML         NORML             Emulsified Water         scalar         Visual*         NEG             Free Water         scalar         Visual*         NEG	Sodium	ppm	ASTM D5185(m)		5		
White Metal         scalar         Visual*         NONE         LIGHT             Yellow Metal         scalar         Visual*         NONE         NONE             Precipitate         scalar         Visual*         NONE         NONE             Silt         scalar         Visual*         NONE         LIGHT             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	Potassium	ppm	ASTM D5185(m)	>20	3		
Yellow Metal         scalar         Visual*         NONE         NONE             Precipitate         scalar         Visual*         NONE         NONE             Silt         scalar         Visual*         NONE         LIGHT             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	VISUAL		method	limit/base	current	history1	history2
Precipitate         scalar         Visual*         NONE         NONE             Silt         scalar         Visual*         NONE         LIGHT             Debris         scalar         Visual*         NONE         NONE             Sand/Dirt         scalar         Visual*         NONE         NONE             Appearance         scalar         Visual*         NORML         NORML             Odor         scalar         Visual*         NEG             Free Water         scalar         Visual*         NEG	White Metal	scalar	Visual*	NONE	LIGHT		
Silt         scalar         Visual*         NONE         LIGHT             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	Yellow Metal	scalar	Visual*	NONE	NONE		
Debris         scalar         Visual*         NONE         NONE             Sand/Dirt         scalar         Visual*         NONE         NONE             Appearance         scalar         Visual*         NORML         NORML             Odor         scalar         Visual*         NORML             Emulsified Water         scalar         Visual*         NEG             Free Water         scalar         Visual*         NEG	Precipitate	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	Silt	scalar	Visual*	NONE	LIGHT		
Appearance         scalar         Visual*         NORML         NORML             Odor         scalar         Visual*         NORML         NORML             Emulsified Water         scalar         Visual*         NEG             Free Water         scalar         Visual*         NEG	Debris	scalar	Visual*	NONE	NONE		
Odor scalar Visual* NORML  Emulsified Water scalar Visual* NEG  Free Water scalar Visual* NEG	Sand/Dirt	scalar	Visual*	NONE	NONE		
Emulsified Water scalar Visual* NEG Free Water scalar Visual* NEG	Appearance	scalar	Visual*	NORML	NORML		
Free Water scalar Visual* NEG	Odor	scalar	Visual*	NORML	NORML		
	Emulsified Water	scalar	Visual*		NEG		
		scalar	Visual*				

Contact/Location: Glenn Thornhill - LAKTIM



# **OIL ANALYSIS REPORT**





CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number

: PC0048715

: 02589426 : 5658492

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

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

: 16 Oct 2023

Test Package : MOB 1 ( Additional Tests: KV100, VI )

Diagnostician : Kevin Marson

: 16 Oct 2023

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. **Lakeshore Gold Timmins West** 

Timmins, ON CA

Contact: Glenn Thornhill gthornhill@ca.panamericansilver.com

T: (705)269-4344