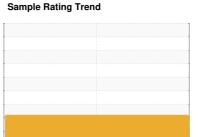


# **OIL ANALYSIS REPORT**



DIRT



# **EPIROC SX1030 SCP218**

Component

Gearbox

**SAE 80W90 (--- GAL)** 

### **DIAGNOSIS**

#### Recommendation

We advise that you check all areas where dirt can enter the system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

#### Wear

Iron ppm levels are abnormal. Aluminum ppm levels are noted. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

#### Contamination

Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. High amount of ingressed dirt has caused abrasive wear to the component.

#### **Fluid Condition**

The oil is no longer serviceable as a result of the abnormal and/or severe wear.

				Oct2023		
SAMPLE INFORM	MATION	method	limit/base		history1	hiotom/0
	IATION		IIIIII/base	current	nistory i	history2
Sample Number		Client Info		WC0865523		
Sample Date		Client Info		09 Oct 2023		
Machine Age	hrs	Client Info		3739		
Oil Age	hrs	Client Info		500		
Oil Changed		Client Info		Not Changd		
Sample Status				ABNORMAL		
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		45		
Iron	ppm	ASTM D5185(m)	>200	<u> </u>		
Chromium	ppm	ASTM D5185(m)	>10	2		
Nickel	ppm	ASTM D5185(m)	>10	<1		
Titanium	ppm	ASTM D5185(m)		2		
Silver	ppm	ASTM D5185(m)		<1		
Aluminum	ppm	ASTM D5185(m)	>25	<b>A</b> 78		
Lead	ppm	ASTM D5185(m)	>50	<1		
Copper	ppm	ASTM D5185(m)	>200	1		
Tin	ppm	ASTM D5185(m)	>10	0		
Antimony	ppm	ASTM D5185(m)	>5	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	maa	ASTM D5185(m)	200	181		
Boron Barium	ppm	ASTM D5185(m) ASTM D5185(m)	200	181 1		
Barium	ppm	ASTM D5185(m)				
Barium Molybdenum	ppm ppm	ASTM D5185(m) ASTM D5185(m)	0	1 <1		
Barium Molybdenum Manganese	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0	1		
Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0	1 <1 3 47		
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0	1 <1 3 47 1480		
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 0 20	1 <1 3 47		
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	0 0 0 20 1000	1 <1 3 47 1480 1098		
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 20 1000 20	1 <1 3 47 1480 1098 735		
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	0 0 20 1000 20 22000	1 <1 3 47 1480 1098 735 8793 <1		
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	0 0 20 1000 20 22000	1 <1 3 47 1480 1098 735 8793 <1 current	      history1	history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	0 0 20 1000 20 22000 limit/base >50	1 <1 3 47 1480 1098 735 8793 <1 current 155	     history1	history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  MASTM D5185(m)  MASTM D5185(m)  MASTM D5185(m)  ASTM D5185(m)  ASTM D5185(m)	0 0 20 1000 20 22000 limit/base >50 >50	1 <1 3 47 1480 1098 735 8793 <1 current 155 19	history1	history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	0 0 20 1000 20 22000 limit/base >50 >50 >20	1 <1 3 47 1480 1098 735 8793 <1 current \$\textstyle 155 19 22	history1	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  MASTM D5185(m)  MASTM D5185(m)  MASTM D5185(m)  ASTM D5185(m)  ASTM D5185(m)	0 0 20 1000 20 22000 limit/base >50 >50	1 <1 3 47 1480 1098 735 8793 <1 current 155 19	history1	history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	0 0 20 1000 20 22000 limit/base >50 >50 >20	1 <1 3 47 1480 1098 735 8793 <1 current \$\textstyle 155 19 22	history1	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium VISUAL	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	0 0 20 1000 20 22000 limit/base >50 >50 >20 limit/base	1 <1 3 47 1480 1098 735 8793 <1 current 155 19 22 current	history1 history1	history2 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium VISUAL White Metal	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  method ASTM D5185(m) ASTM D5185(m)  ASTM D5185(m)  Wisual*	0 0 20 1000 20 22000 limit/base >50 >50 >20 limit/base	1 <1 3 47 1480 1098 735 8793 <1 current 155 19 22 current VLITE	history1 history1	history2 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINANTS Silicon Sodium Potassium VISUAL White Metal Yellow Metal	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  method ASTM D5185(m) ASTM D5185(m)  ASTM D5185(m)  Wisual*	0 0 20 1000 20 22000 limit/base >50 >50 >20 limit/base NONE	1 <1 3 47 1480 1098 735 8793 <1 current    155 19 22 current   VLITE NONE	history1 history1	history2 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium VISUAL White Metal Yellow Metal Precipitate	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  METHOD  METHOD  ASTM D5185(m) ASTM D5185(m)  ASTM D5185(m)  ASTM D5185(m)  Visual*  Visual*	0 0 20 1000 20 22000 limit/base >50 >50 >20 limit/base NONE NONE	1 <1 3 47 1480 1098 735 8793 <1 current    155 19 22 current   VLITE NONE NONE	history1 history1	history2 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINANTS Silicon Sodium Potassium VISUAL White Metal Yellow Metal Precipitate Silt	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)  METHOD  METHOD  METHOD  WISUAL*  Visual*  Visual*	0 0 20 1000 20 22000 limit/base >50 >50 >20 limit/base NONE NONE	1 <1 3 47 1480 1098 735 8793 <1 current 155 19 22 current VLITE NONE NONE LIGHT	history1 history1	history2 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINANTS Silicon Sodium Potassium VISUAL White Metal Yellow Metal Precipitate Silt Debris	ppm	ASTM D5185(m)  METHOD  METHOD  METHOD  Visual* Visual* Visual* Visual* Visual*	0 0 20 1000 20 22000 limit/base >50 >50 >20 limit/base NONE NONE NONE NONE	1 <1 3 47 1480 1098 735 8793 <1 current 155 19 22 current VLITE NONE NONE LIGHT NONE	history1 history1	history2 history2

NORML

>0.2

Visual\*

Visual\*

scalar

scalar

scalar Visual\*

**NORML** 

NEG

NEG

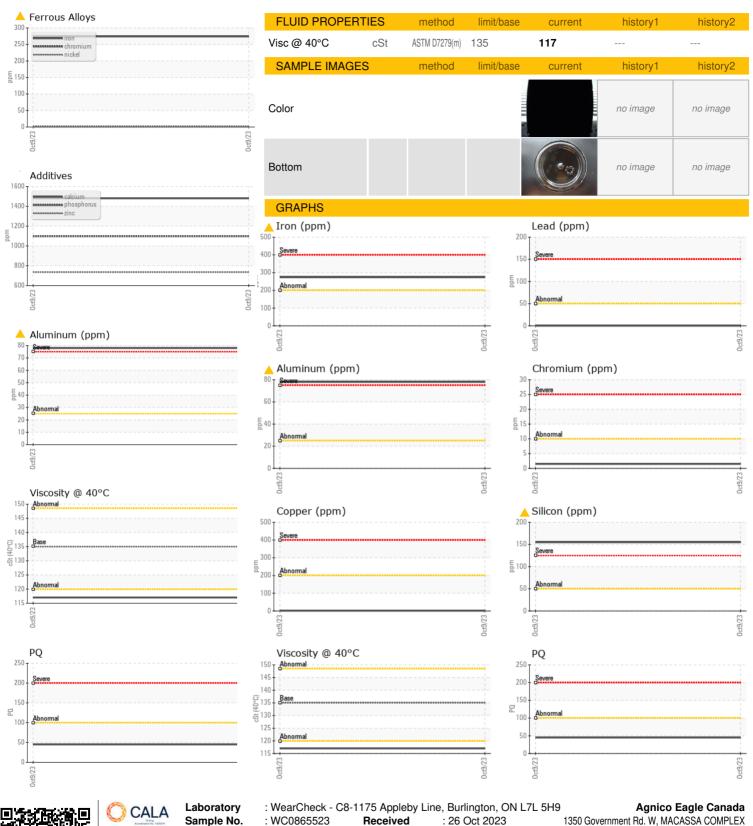
Odor

**Emulsified Water** 

on: Mike Campbell - KIR370KIR



# **OIL ANALYSIS REPORT**





ISO 17025:2017 Accredited

Sample No. Lab Number **Unique Number** 

: WC0865523 : 02592194

: 5669273

Received

Diagnosed : 27 Oct 2023 Diagnostician : Kevin Marson Test Package : MOB 1 ( Additional Tests: PQ )

1350 Government Rd. W, MACASSA COMPLEX Kirkland Lake, ON

CA P2N 3J1 Contact: Mike Campbell mike.campbell@agnicoeagle.com

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.

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