

## **OIL ANALYSIS REPORT**

Sample Rating Trend

### NORMAL



Lube System Fluid R&O OIL ISO 46 (--- GAL)

#### 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. Resample at the next service interval to monitor. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) R&O OIL ISO 46. Please confirm. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

#### Wear

All component wear rates are normal.

#### Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

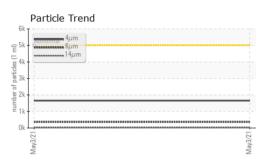
#### Fluid Condition

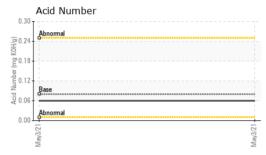
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

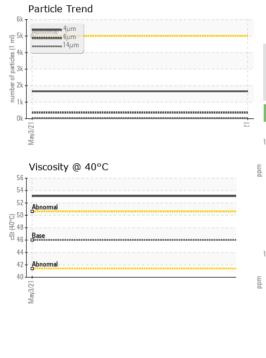
				May2021		
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0560623		
Sample Date		Client Info		03 May 2021		
Machine Age	hrs	Client Info		0		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		N/A		
Sample Status				NORMAL		
CONTAMINATIO	N	method	limit/base	current	history1	history2
Water		WC Method	>0.05	NEG		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>20	<1		
Chromium	ppm	ASTM D5185(m)	>20	0		
Nickel	ppm	ASTM D5185(m)	>20	0		
Titanium	ppm	ASTM D5185(m)		0		
Silver	ppm	ASTM D5185(m)		<1		
Aluminum	ppm	ASTM D5185(m)	>20	<1		
Lead	ppm	ASTM D5185(m)	>20	<1		
Copper	ppm	ASTM D5185(m)	>20	3		
Tin	ppm	ASTM D5185(m)	>20	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)	5	<1		
	ppm ppm	ASTM D5185(m) ASTM D5185(m)		<1 0		
Barium	ppm	. 7				
Barium Molybdenum	ppm ppm	ASTM D5185(m) ASTM D5185(m)	5	0		
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185(m)	5	0 0		
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5	0 0 0		
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 5 5	0 0 0 <1 4		  
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 5 5 100	0 0 <1 4 28	  	  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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) ASTM D5185(m)	5 5 5 5 100 25	0 0 <1 4 28 24	   	   
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 5 5 100	0 0 <1 4 28	   	   
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm 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) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 5 100 25 1500	0 0 <1 4 28 24 1536		
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm 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) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) <b>method</b>	5 5 5 5 100 25	0 0 2 3 4 28 24 1536 <1 24 1536	   	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm 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) ASTM D5185(m) ASTM D5185(m) <b>method</b> ASTM D5185(m)	5 5 5 100 25 1500 limit/base	0 0 <1 4 28 24 1536 <1	     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) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) <b>method</b>	5 5 5 100 25 1500 limit/base	0 0 2 3 4 28 24 1536 <1 24 1536 3 1	     history1	      history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm 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) ASTM D5185(m) ASTM D5185(m) <b>method</b> ASTM D5185(m) ASTM D5185(m)	5 5 5 100 25 1500 limit/base >15	0 0 4 4 28 24 1536 <1	      history1	<ul> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>history2</li> <li></li> <li></li> </ul>
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm 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) ASTM D5185(m) ASTM D5185(m) <b>Method</b> ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 5 100 25 1500 <b>limit/base</b> >15	0 0 () () () () () () () () () () () () ()	      history1  	      history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	5 5 5 100 25 1500 imit/base >15 >20 imit/base >5000	0 0 2 3 4 28 24 1536 <1 536 <1 2 1 2 1 2 1 2 1 2 1 2 1 1 2 1 1 57	     history1   history1	<ul> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>history2</li> <li></li> <li>history2</li> <li></li> <li>history2</li> </ul>
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	5 5 5 5 100 25 1500 imit/base >15 >20 imit/base >5000 >1300	0 0 2 3 4 28 24 1536 <1 536 <1 1 2 1 2 1 2 1 2 1 2 1 57 366	     history1   history1 	<ul> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>history2</li> <li></li> <li></li> <li>history2</li> </ul>
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >6µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647	5 5 100 5 100 25 1500 1500 100 1500 100 100 100 100 100	0 0 2 3 4 28 24 1536 <1 536 <1 1 2 1 2 1 1 2 1 1 57 366 25	<ul> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>history1</li> <li></li> <li></li> <li>history1</li> <li></li> </ul>	<ul> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>history2</li> <li></li> <li>history2</li> <li></li> <li></li> </ul>
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	5 5 100 5 100 25 1500 1500 1500 1500 100 100 100 100 10	0 0 () () () () () () () () () () () () ()	<ul> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>history1</li> <li></li> <li></li></ul>	<ul> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>history2</li> <li></li> <li>history2</li> <li></li> <li></li> </ul>
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm Particles >21µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	5 5 5 100 25 1500 1500 <b>limit/base</b> >15 20 <b>limit/base</b> >5000 >1300 >160 >160 >10	0 0 0 <1 4 28 24 1536 <1 <i>current</i> 1 2 1 1 2 1 1 <i>current</i> 1657 366 25 7 0	<ul> <li></li> <li></li> <li></li> <li></li> <li></li> <li>history1</li> <li></li> <li>history1</li> <li></li> <li></li></ul>	<ul> <li></li> <li< td=""></li<></ul>
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	5 5 5 100 25 1500 1500 <b>limit/base</b> >15 20 <b>limit/base</b> >5000 >1300 >160 >160 >10	0 0 () () () () () () () () () () () () ()	history1 history1 <td>       history2  history2  history2</td>	       history2  history2  history2



# **OIL ANALYSIS REPORT**



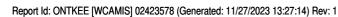




FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.08	0.06		
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE		
Yellow Metal	scalar	Visual*	NONE	NONE		
Precipitate	scalar	Visual*	NONE	NONE		
Silt	scalar	Visual*	NONE	NONE		
Debris	scalar	Visual*	NONE	NONE		
Sand/Dirt	scalar	Visual*	NONE	NONE		
Appearance	scalar	Visual*	NORML	NORML		
Ddor	scalar	Visual*	NORML	NORML		
Emulsified Water	scalar	Visual*	>0.05	NEG		
Free Water	scalar	Visual*		NEG		
FLUID PROPERT		method	limit/base	current	history1	history2
/isc @ 40°C	cSt	ASTM D7279(m)	46	53.1		
SAMPLE IMAGES	6	method	limit/base	current	history1	history2
Color					no image	no image
Bottom					no image	no image
GRAPHS						
Ferrous Alloys			401 520	Particle Count		20
iron			491,520			T <sup>26</sup>
nickel			122,880	Severe		-24
			30,720	<b>†</b> • • • •		-22
21			₹ Ê 7,680	Abnormal		-20
May3/21			(per 1 ml	·		-18
Non-ferrous Metal	5		·편 480	1		+20 +18 +16 +14
			May3/2001		S	114
copper			numpe			-12
			= 30			
			8			-10
May3/21			May3/21	-	1	-8
			ž O	μ 6μ	14µ 21µ	38µ 71µ
Viscosity @ 40°C				Acid Number	50 Å	
Abnormal			学0.30 又	Abnormal		
Base			ຍິ 0.20 ອ			
Abnormal			0.00 4000 April 10 00.00 00.00 00.00 00.00 00.00	Abnormal		
±			00.0 Acid	Abnormal		2
May3/2			May3/2	May3/2		
02423578	75 Apple Received Diagnose Diagnost	i : 26   ed : 27	lington, ON L May 2021 May 2021 vin Marson		DDUCTION CENTRE, 200	ver Generatio -60 FOURTEENTH ST KENORA, OI CA P9N 4M Josh Robinso

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.

josh.robinson@opg.com T: F:



CALA

ISO 17025:2017 Accredited Laboratory

Laboratory

Sample No. Lab Number

**Unique Number Test Package**