

WEAR SEVERE CONTAMINATION NORMAL FLUID CONDITION NORMAL

Industrial Mechanical/Conveyors 17-UGCNVY-CV-6680-4 Component Drive End Conveyor Gearbox Fluid SHELL OMALA S2 G 220 (--- GAL)

RECOMMENDATION

We advise that you check for visible metal particles in the oil. 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

Lead ppm levels are severe. Light concentration of visible metal present. Gear wear is indicated.

CONTAMINATION

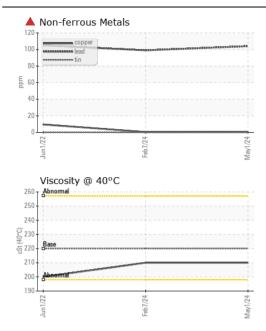
There is no indication of any contamination in the oil.

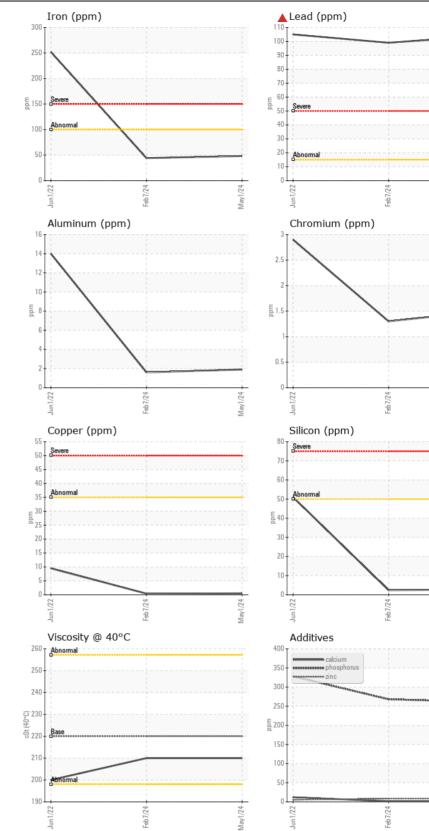
FLUID CONDITION

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

	Test	UOM	Method	Limit/Abn	Current	History1	History2
	Sample Number		Client Info		WC0866397	WC0866337	WC0413454
	Sample Date		Client Info		01 May 2024	07 Feb 2024	01 Jun 2022
	Machine Age	hrs	Client Info		0	0	0
	Oil Age	hrs	Client Info		0	0	0
	Filter Age	hrs	Client Info		0	0	0
	Oil Changed		Client Info		N/A	Not Changd	N/A
	Filter Changed		Client Info		N/A	Not Changd	N/A
	Sample Status			SEVERE	SEVERE	SEVERE	
				. 100	48	4.4	A 050
	Iron Chromium	ppm	ASTM D5185(m)	>100	48 2	44	▲ 252 3
		ppm	ASTM D5185(m)		_		
	Nickel	ppm	ASTM D5185(m)		<1	<1	10
	Titanium Silver	ppm	ASTM D5185(m)		0	0	<1
		ppm	ASTM D5185(m)		0	0	<1
	Aluminum	ppm	ASTM D5185(m)	45	2	2	14
	Lead	ppm	ASTM D5185(m)	>15	▲ 104	▲ 99 1	▲ 105
	Copper	ppm	ASTM D5185(m)	>35	<1	<1	10
	Tin	ppm	ASTM D5185(m)		0	0	0
	Vanadium	ppm	ASTM D5185(m)				
	White Metal	scalar	Visual*	NONE		NONE	NONE
	Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
	Silicon	ppm	ASTM D5185(m)	>50	3	2	▲ 51
	Silicon Potassium	ppm ppm	ASTM D5185(m) ASTM D5185(m)	>50 >20	3 1	2 1	▲ 51 6
			()				
	Potassium		ASTM D5185(m)	>20	1	1	6
	Potassium Water	ppm	ASTM D5185(m) WC Method	>20 >0.2	1 NEG	1 NEG	6 NEG
	Potassium Water Silt	ppm scalar	ASTM D5185(m) WC Method Visual*	>20 >0.2 NONE	1 NEG NONE	1 NEG NONE	6 NEG LIGHT
	Potassium Water Silt Debris	ppm scalar scalar	ASTM D5185(m) WC Method Visual* Visual*	>20 >0.2 NONE NONE	1 NEG NONE VLITE	1 NEG NONE NONE	6 NEG LIGHT LIGHT
	Potassium Water Silt Debris Sand/Dirt	ppm scalar scalar scalar	ASTM D5185(m) WC Method Visual* Visual* Visual*	>20 >0.2 NONE NONE NONE	1 NEG NONE VLITE NONE	1 NEG NONE NONE NONE	6 NEG LIGHT LIGHT NONE
	Potassium Water Silt Debris Sand/Dirt Appearance	ppm scalar scalar scalar scalar	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual*	>20 >0.2 NONE NONE NONE NORML	1 NEG NONE VLITE NONE NORML	1 NEG NONE NONE NORE	6 NEG LIGHT LIGHT NONE NORML
	Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water	ppm scalar scalar scalar scalar scalar scalar	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual*	>20 >0.2 NONE NONE NORML NORML	1 NEG NONE VLITE NONE NORML NORML NEG	1 NEG NONE NONE NORML NORML NEG	6 NEG LIGHT LIGHT NONE NORML NORML NEG
	Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium	ppm scalar scalar scalar scalar scalar scalar scalar	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m)	>20 >0.2 NONE NONE NORML NORML >0.2	1 NEG NONE VLITE NONE NORML NEG 1	1 NEG NONE NONE NORML NORML NEG 1	6 NEG LIGHT LIGHT NONE NORML NORML NEG 4
	Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron	ppm scalar scalar scalar scalar scalar scalar ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m)	>20 >0.2 NONE NONE NORML >0.2	1 NEG NONE VLITE NORML NORML NEG 1 <1	1 NEG NONE NONE NORML NORML NEG 1 <1	6 NEG LIGHT LIGHT NONE NORML NORML NEG 4 <1
	Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium	ppm scalar scalar scalar scalar scalar scalar ppm ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m)	>20 >0.2 NONE NONE NORML NORML >0.2	1 NEG NONE VLITE NORML NORML NEG 1 <1 <1	1 NEG NONE NONE NORML NORML NEG 1 <1 0	6 NEG LIGHT LIGHT NORML NORML NEG 4 <1 0
	Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum	ppm scalar scalar scalar scalar scalar ppm ppm ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>20 >0.2 NONE NONE NORML >0.2	1 NEG NONE VLITE NORML NORML NEG 1 <1 <1 <1 <1 0	1 NEG NONE NONE NORML NORML NEG 1 <1 0 0	6 NEG LIGHT LIGHT NONE NORML NORML NEG 4 <1 0 <1
	Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese	ppm scalar scalar scalar scalar scalar scalar ppm ppm ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>20 >0.2 NONE NONE NORML >0.2 4.4 0.0 0	1 NEG NONE VLITE NORML NORML NEG 1 <1 <1 <1 0 <1	1 NEG NONE NONE NORML NORML NEG 1 <1 0 0 0	6 NEG LIGHT LIGHT NONE NORML NEG 4 <1 0 <1 2
	Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium	ppm scalar scalar scalar scalar scalar scalar ppm ppm ppm ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>20 >0.2 NONE NONE NORML NORML >0.2 4.4 0.0 0	1 NEG NONE VLITE NORML NORML NEG 1 <1 <1 <1 0 <1 1 1	1 NEG NONE NONE NORML NORML NEG 1 <1 <1 0 0 0 0 1	6 NEG LIGHT LIGHT NONE NORML NORML NEG 4 <1 0 <1 2 9
	Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium	ppm scalar scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>20 >0.2 NONE NONE NORML NORML >0.2 4.4 0.0 0	1 NEG NONE VLITE NORML NORML NEG 1 <1 <1 0 <1 1 2	1 NEG NONE NONE NORML NORML NEG 1 <1 0 0 0 0 1 2	6 NEG LIGHT LIGHT NORML NORML NEG 4 <1 0 <1 2 9 12
	Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium	ppm scalar scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>20 >0.2 NONE NONE NORML >0.2 4.4 0.0 0 0 0 0 215	1 NEG NONE VLITE NORML NORML NEG 1 <1 <1 <1 <1 0 <1 1 1 2 261	1 NEG NONE NONE NORML NORML NEG 1 <1 <1 0 0 0 0 1 2 268	6 NEG LIGHT LIGHT NONE NORML NEG 4 <1 0 <1 2 9 12 328
	Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Malybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm scalar scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>20 >0.2 NONE NONE NORML >0.2 4.4 0.0 0 0 0 0 215 0	1 NEG NONE VLITE NORML NORML NEG 1 <1 <1 <1 <1 0 <1 1 2 261 8	1 NEG NONE NONE NORML NORML NEG 1 <1 <1 0 0 0 0 1 2 268 8	6 NEG LIGHT LIGHT NONE NORML NEG 4 <1 0 <1 2 9 12 328 5
	Potassium Water Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium	ppm scalar scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm	ASTM D5185(m) WC Method Visual* Visual* Visual* Visual* Visual* Visual* ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>20 >0.2 NONE NONE NORML >0.2 4.4 0.0 0 0 0 0 215	1 NEG NONE VLITE NORML NORML NEG 1 <1 <1 <1 <1 0 <1 1 1 2 261	1 NEG NONE NONE NORML NORML NEG 1 <1 <1 0 0 0 0 1 2 268	6 NEG LIGHT LIGHT NONE NORML NEG 4 <1 0 <1 2 9 12 328

Contact/Location: Igor Bozhyk - INCCRE





Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Vale - Creighton Mine CALA Sample No. CREIGHTON MINE MNTCE. (PLANT 17) : WC0866397 Received :07 May 2024 间 Lab Number : 02633968 Tested :09 May 2024 COPPER CLIFF, ON ISO 17025:2017 Accredited : 09 May 2024 - Kevin Marson CA POM 1N0 Unique Number : 5775121 Diagnosed Laboratory Test Package : MOB 1 (Additional Tests: BottomAnalysis, FILTERPATCH) Contact: Igor Bozhyk To discuss this sample report, contact Customer Service at 1-800-268-2131. igor.bozhyk@vale.com T: (705)682-7009 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. F: x: Validity of results and interpretation are based on the sample and information as supplied.

Contact/Location: Igor Bozhyk - INCCRE Page 2 of 2

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