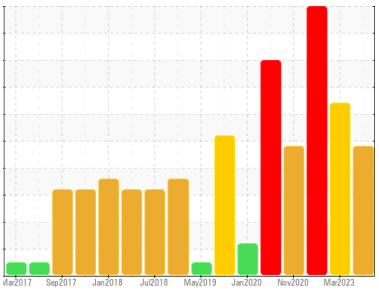
PROBLEM SUMMARY

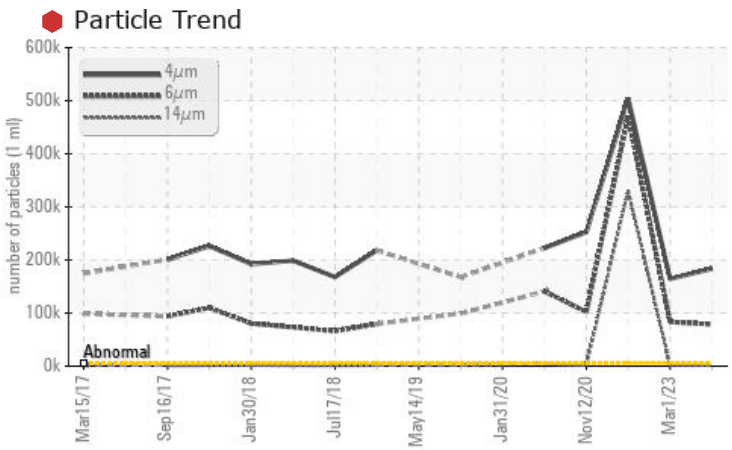
Area
Wide Cold Mill/Temper Mill
Machine Id
80" TEMPER MILL DRIVE LUBE (MILL OIL CELLAR) (WCM001) (S/N 1000006023)
Component
Gear Lube System
Fluid
PETRO CANADA ULTIMA EP 460 (2500 GAL)

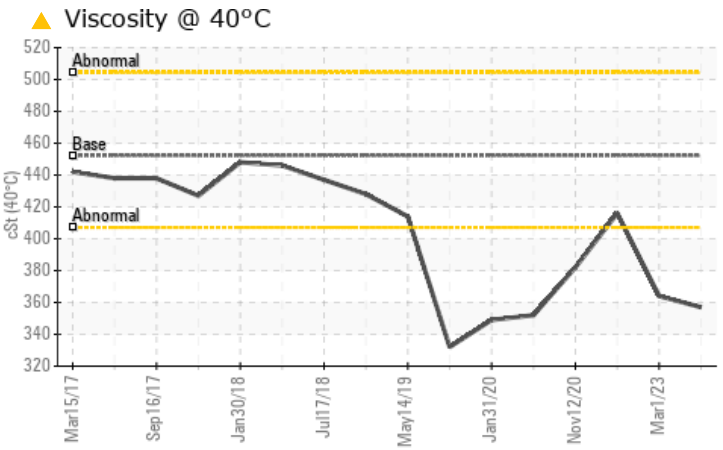
Sample Rating Trend



ISO

COMPONENT CONDITION SUMMARY





RECOMMENDATION

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using IND 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	SEVERE	SEVERE
Particles >4µm		ASTM D7647	>5000	**183797**	164215	504271
Particles >6µm		ASTM D7647	>1300	**78716**	83329	470593
Particles >14µm		ASTM D7647	>320	**1120**	2519	330265
Particles >21µm		ASTM D7647	>80	**133**	398	242697
Oil Cleanliness		ISO 4406 (c)	>19/17/15	**25/23/17**	25/24/19	26/26/26
Visc @ 40°C	cSt	ASTM D7279(m)	452.3	**357**	364	416

Customer Id: ALGSSM
Sample No.: WC0752383
Lab Number: 02577810
Test Package: IND 2

To manage this report scan the QR code

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To change component or sample information:
Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	Resample in 30-45 days to monitor this situation.
Contact Required	---	---	?	Please contact your representative for information regarding the proper sampling kits for your service.
Alert	---	---	?	NOTE: We recommend using IND 3 test kits,
Check Breathers	---	---	?	The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather.
Check Seals	---	---	?	Check seals and/or filters for points of contaminant entry.

HISTORICAL DIAGNOSIS

ISO

01 Mar 2023 Diag: Kevin Marson

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using IND 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.Component wear rates appear to be normal (unconfirmed). Particles >14µm are severely high. Particles >6µm are severely high. Oil Cleanliness are severely high. Particles >4µm are severely high. Particles >21µm are abnormally high. The system cleanliness code is much higher than the acceptable limit for the target ISO 4406 cleanliness code. Viscosity of sample indicates oil is within ISO 320 range, advise investigate. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

WATER

29 Jan 2021 Diag: Kevin Marson

Check seals and/or filters for points of contaminant entry. We advise that you check all areas where contaminants can enter the system. We advise that you follow the water drain-off procedure for this component, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using IND 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.Iron ppm levels are abnormal. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion. ppm Water and water contamination levels are severe. Particles >38µm are severely high. Particles >6µm are severely high. Particles >71µm are severely high. Particles >14µm are severely high. Particles >21µm are severely high. Particles >4µm are severely high. Silicon ppm levels are abnormally high. There is a high concentration of water present in the oil. Free water present. Elemental level of silicon (Si) above normal indicating ingress of seal material. The system cleanliness code is much higher than the acceptable limit for the target ISO 4406 cleanliness code. The AN level is acceptable for this fluid.

view report

ISO

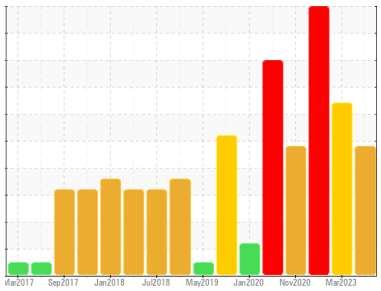
12 Nov 2020 Diag: Kevin Marson

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation.Iron ppm levels are abnormal. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion. Particles >6µm are severely high. Particles >4µm are severely high. Particles >14µm are abnormally high. Particles >21µm are notably high. The system cleanliness code is much higher than the acceptable limit for the target ISO 4406 cleanliness code. Viscosity of sample indicates oil is within ISO 320 range, advise investigate. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
Wide Cold Mill/Temper Mill
Machine Id
80" TEMPER MILL DRIVE LUBE (MILL OIL CELLAR) (WCM001) (S/N 1000006023)
Component
Gear Lube System
Fluid
PETRO CANADA ULTIMA EP 460 (2500 GAL)

DIAGNOSIS

Recommendation

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend you service the filters on this component. Resample in 30-45 days to monitor this situation. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using IND 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.

Wear

Component wear rates appear to be normal (unconfirmed).

Contamination

There is a high amount of silt (particulates < 14 microns in size) present in the oil. The system cleanliness code is much higher than the acceptable limit for the target ISO 4406 cleanliness code.

Fluid Condition

Viscosity of sample indicates oil is within ISO 320 range, advise investigate. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0752383**	WC0752203	WC0419568
Sample Date		Client Info		**22 Aug 2023**	01 Mar 2023	29 Jan 2021
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**SEVERE**	SEVERE	SEVERE

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>150	**99**	95	▲ 251
Chromium	ppm	ASTM D5185(m)	>10	**<1**	<1	<1
Nickel	ppm	ASTM D5185(m)	>10	**<1**	<1	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**0**	0	<1
Aluminum	ppm	ASTM D5185(m)	>25	**<1**	<1	1
Lead	ppm	ASTM D5185(m)	>100	**2**	2	2
Copper	ppm	ASTM D5185(m)	>50	**6**	5	5
Tin	ppm	ASTM D5185(m)	>10	**4**	4	6
Antimony	ppm	ASTM D5185(m)	>5	**0**	<1	<1
Vanadium	ppm	ASTM D5185(m)		**0**	0	<1
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	111	**1**	<1	3
Barium	ppm	ASTM D5185(m)		**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	0	**0**	0	<1
Manganese	ppm	ASTM D5185(m)		**<1**	<1	2
Magnesium	ppm	ASTM D5185(m)	2	**<1**	<1	1
Calcium	ppm	ASTM D5185(m)	6	**7**	3	8
Phosphorus	ppm	ASTM D5185(m)	482	**174**	176	251
Zinc	ppm	ASTM D5185(m)	3	**24**	21	11
Sulfur	ppm	ASTM D5185(m)	1458	**4337**	4575	10165
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

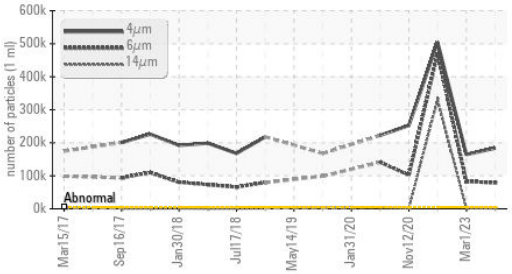
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>50	**4**	4	▲ 56
Sodium	ppm	ASTM D5185(m)		**14**	12	34
Potassium	ppm	ASTM D5185(m)	>20	**5**	4	4

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	● **183797**	● 164215	● 504271
Particles >6µm		ASTM D7647	>1300	● **78716**	● 83329	● 470593
Particles >14µm		ASTM D7647	>320	▲ **1120**	● 2519	● 330265
Particles >21µm		ASTM D7647	>80	▲ **133**	▲ 398	● 242697
Particles >38µm		ASTM D7647	>20	**4**	15	● 93303
Particles >71µm		ASTM D7647	>4	**2**	3	● 18468
Oil Cleanliness		ISO 4406 (c)	>19/17/15	● **25/23/17**	● 25/24/19	● 26/26/26

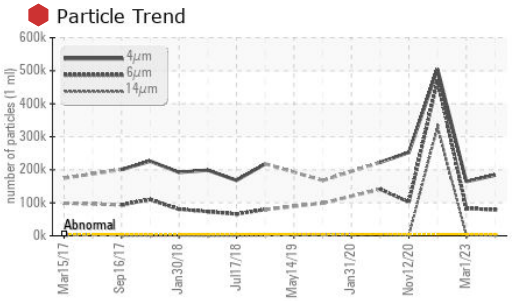
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.4	**0.32**	0.38	0.67

OIL ANALYSIS REPORT

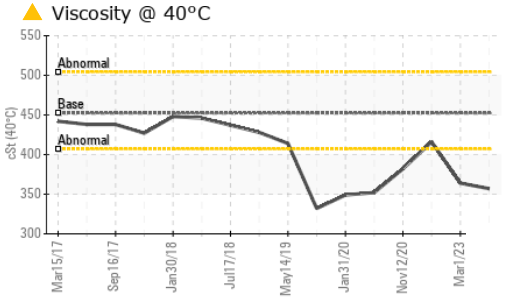
Particle Trend



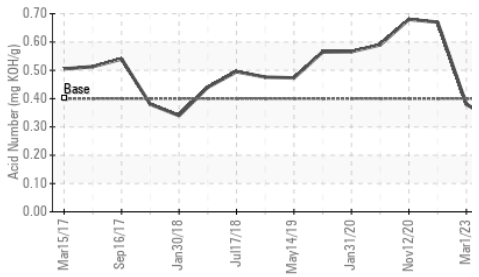
Particle Trend



Viscosity @ 40°C

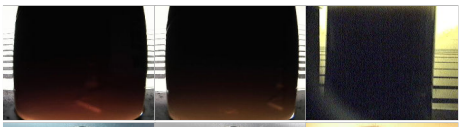


Acid Number



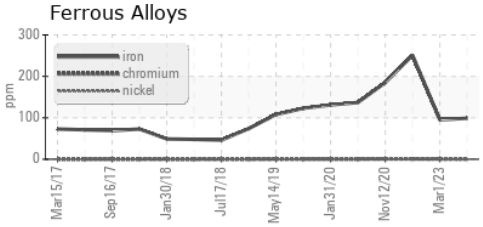
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**VLITE**	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**VLITE**	NONE	NONE
Debris	scalar	Visual*	NONE	**VLITE**	NONE	VLITE
Sand/Dirt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Appearance	scalar	Visual*	NORML	**NORML**	NORML	NORML
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	**NEG**	NEG	▲ 1%
Free Water	scalar	Visual*		**NEG**	NEG	▲ 1%

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	452.3	▲ **357**	▲ 364	416

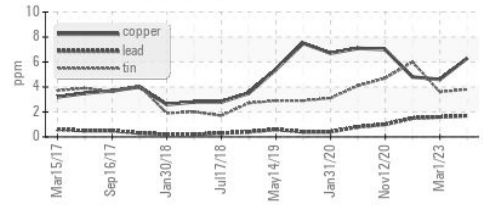
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS

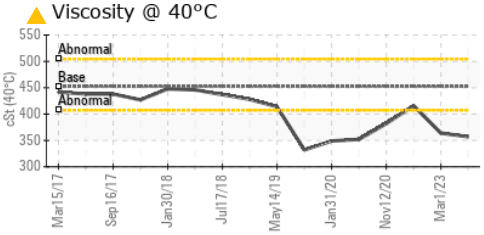
Ferrous Alloys



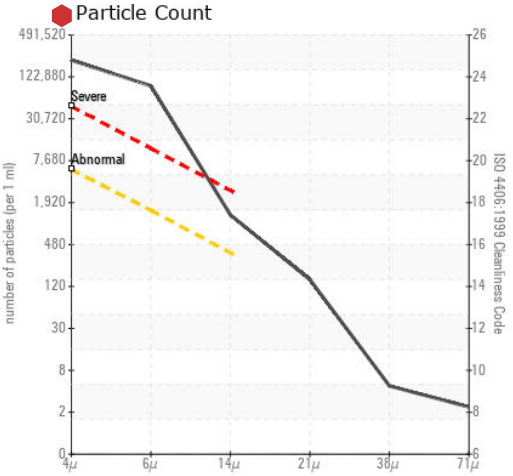
Non-ferrous Metals



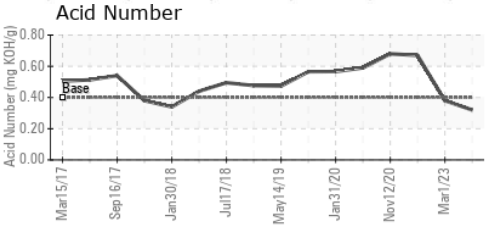
Viscosity @ 40°C



Particle Count



Acid Number



CALA
ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **ALGOMA STEEL INC. - STORES DEPT.**
Sample No. : WC0752383
Lab Number : 02577810
Unique Number : 5630870
Test Package : IND 2

Received : 23 Aug 2023
Diagnosed : 25 Aug 2023
Diagnostician : Kevin Marson

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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.