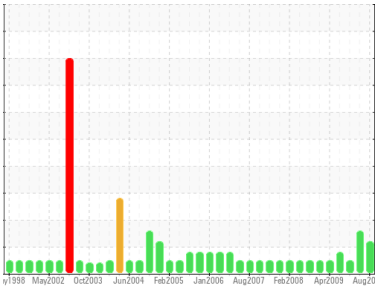
PROBLEM SUMMARY

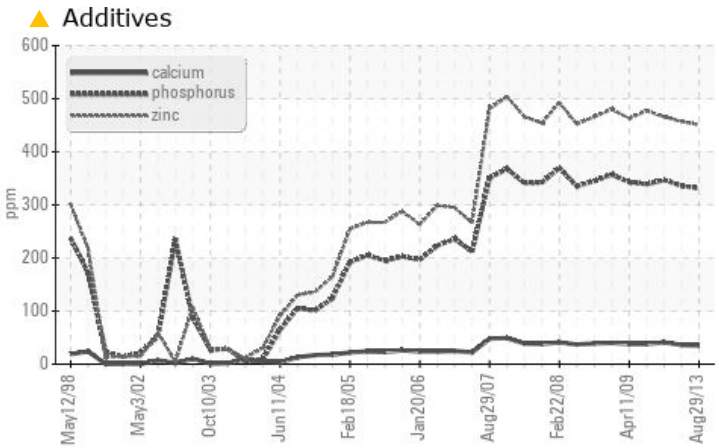
Sample Rating Trend



ADDITIVES

Area
Industrial Mechanical/Hoists [4019449]
Machine Id
17-SKHST9-BRAKES
Component
Hydraulic System
Fluid
ESSO TERESSO ISO 32 (400 LTR)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. The fluid was specified as ESSO TERESSO ISO 32, however, a fluid match indicates that this fluid is ISO 32 AW Hydraulic Oil (Lo-Visc). Please confirm the oil type and grade on your next sample.

PROBLEMATIC TEST RESULTS

Sample Status				ATTENTION	ATTENTION	ATTENTION
Calcium	ppm	ASTM D5185(m)		▲ 35	▲ 36	41
Phosphorus	ppm	ASTM D5185(m)		▲ 331	▲ 336	▲ 347
Zinc	ppm	ASTM D5185(m)		▲ 451	▲ 457	▲ 466

Customer Id: INCCRE
Sample No.: WC0246629
Lab Number: 01862798
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Bill Quesnel CLS,OMA II,MLA-III,LLA-I +1 (289)291-4641 x4641
Bill.Quesnel@wearcheck.com

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
Alert	---	---	?	The fluid was specified as ESSO TERESSO ISO 32, however, a fluid match indicates that this fluid is ISO 32 AW Hydraulic Oil. Please confirm the oil type and grade on your next sample.
Check Fluid Source	---	---	?	Confirm the source of the lubricant being utilized for top-up/fill.

HISTORICAL DIAGNOSIS

06 Jun 2013 Diag: Bill Quesnel

ADDITIVES

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. The fluid was specified as ESSO TERESSO ISO 32, however, a fluid match indicates that this fluid is ISO 32 AW Hydraulic Oil (Lo-Visc). Please confirm the oil type and grade on your next sample.All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. Additive levels indicate the addition of a different brand, or type of oil. The TAN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

26 Oct 2011 Diag: Kevin Marson

ADDITIVES

Resample at the next service interval to monitor.All component wear rates are normal. The system cleanliness is acceptable for your target iso 4406 cleanliness code. The system and fluid cleanliness is acceptable. Additive levels indicate the addition of a different brand, or type of oil.

view report

11 May 2011 Diag: Doug Bogart

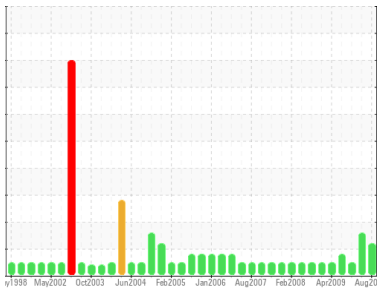
WEAR

Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.The lead level is abnormal. All other component wear rates are normal. There is no indication of any contamination in the component. The condition of the oil is acceptable for the time in service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



ADDITIVES

Area
Industrial Mechanical/Hoists [4019449]
Machine Id
17-SKHST9-BRAKES
Component
Hydraulic System
Fluid
ESSO TERESSO ISO 32 (400 LTR)

DIAGNOSIS

Recommendation

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. The fluid was specified as ESSO TERESSO ISO 32, however, a fluid match indicates that this fluid is ISO 32 AW Hydraulic Oil (Lo-Visc). Please confirm the oil type and grade on your 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

Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0246629**	WC0246608	WC0229144
Sample Date		Client Info		**29 Aug 2013**	06 Jun 2013	26 Oct 2011
Machine Age	mths	Client Info		**0**	0	0
Oil Age	mths	Client Info		**0**	0	0
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**ATTENTION**	ATTENTION	ATTENTION

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)		**<1**	<1	<1
Chromium	ppm	ASTM D5185(m)		**0**	0	0
Nickel	ppm	ASTM D5185(m)		**0**	0	0
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**0**	<1	0
Aluminum	ppm	ASTM D5185(m)		**0**	0	0
Lead	ppm	ASTM D5185(m)		**0**	<1	<1
Copper	ppm	ASTM D5185(m)		**<1**	<1	<1
Tin	ppm	ASTM D5185(m)		**0**	0	0
Antimony	ppm	ASTM D5185(m)		**0**	0	<1
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
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)		**<1**	<1	<1
Barium	ppm	ASTM D5185(m)		**<1**	<1	0
Molybdenum	ppm	ASTM D5185(m)		**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)		**<1**	<1	0
Calcium	ppm	ASTM D5185(m)		▲ **35**	▲ 36	41
Phosphorus	ppm	ASTM D5185(m)		▲ **331**	▲ 336	▲ 347
Zinc	ppm	ASTM D5185(m)		▲ **451**	▲ 457	▲ 466
Sulfur	ppm	ASTM D5185(m)		**2856**	▲ 2713	2839
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

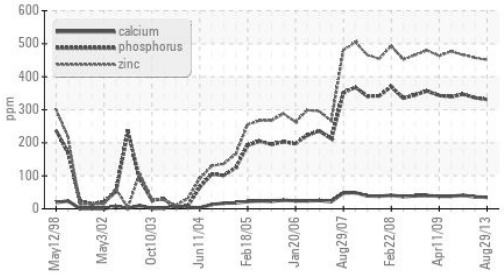
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)		**<1**	<1	<1
Sodium	ppm	ASTM D5185(m)		**<1**	3	0
Potassium	ppm	ASTM D5185(m)		**0**	0	0

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**2627**	793	5040
Particles >6µm		ASTM D7647		**722**	169	1104
Particles >14µm		ASTM D7647		**72**	9	38
Particles >21µm		ASTM D7647		**23**	2	10
Particles >38µm		ASTM D7647		**2**	0	2
Particles >71µm		ASTM D7647		**0**	0	0
Oil Cleanliness		ISO 4406 (c)		**19/17/13**	17/15/10	20/17/12

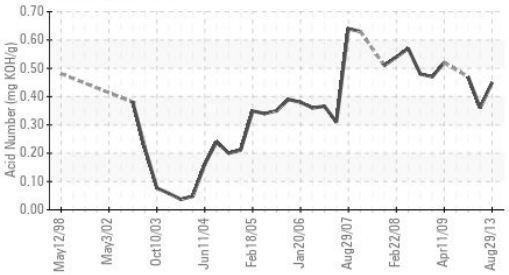
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		**0.45**	0.36	0.47

OIL ANALYSIS REPORT

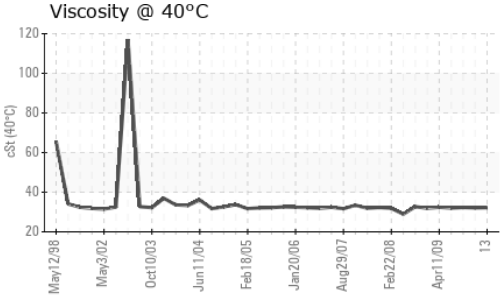
Additives



Acid Number

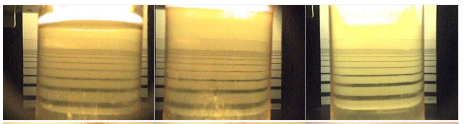


Viscosity @ 40°C



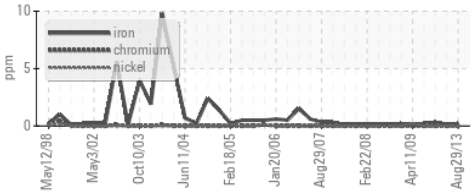
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Debris	scalar	Visual*	NONE	**VLITE**	VLITE	VLITE
Sand/Dirt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

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)		**32.2**	32.1	32.3
Fluid Type		In-house*		**ISO_HYD_AW_LO**	ISO_HYD_AW_LO	---

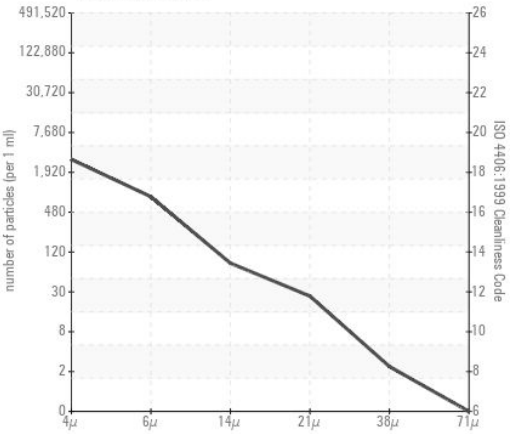
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS

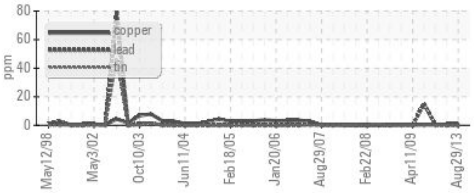
Ferrous Alloys



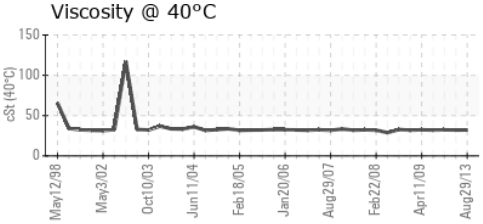
Particle Count



Non-ferrous Metals



Viscosity @ 40°C



Acid Number

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0246629 **Received** : 11 Sep 2013
Lab Number : 01862798 **Diagnosed** : 12 Sep 2013
Unique Number : 3780384 **Diagnostician** : Bill Quesnel
Test Package : IND 2 (Additional Tests: FluidDetermination)

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.

Vale - Creighton Mine
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CA P0M 1N0
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