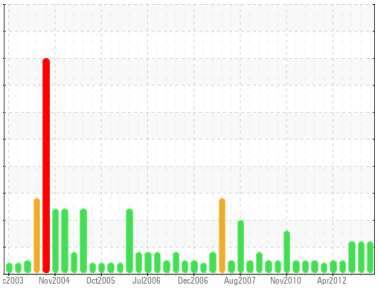
PROBLEM SUMMARY

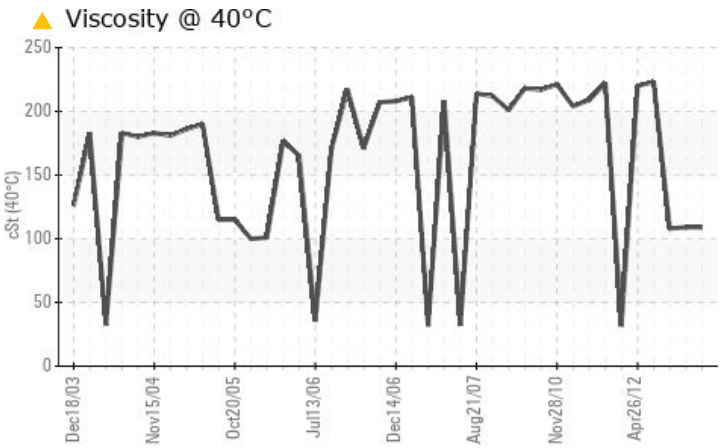
Sample Rating Trend

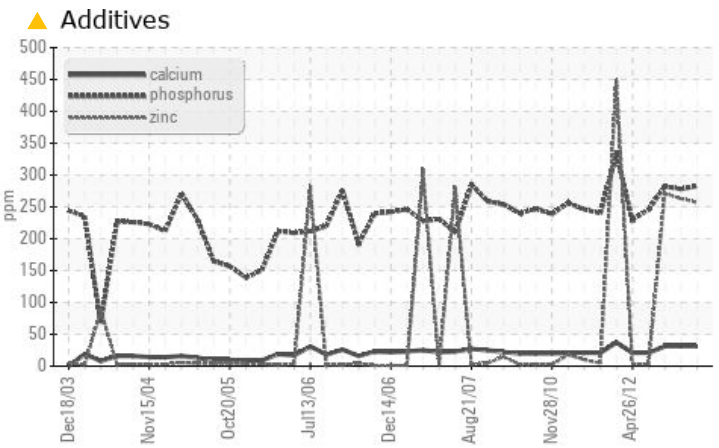


VISCOSITY

Area
Industrial Mechanical/Hoists
Machine Id
17-SKHST9-LUBE
Component
Bearing Lube
Fluid
ESSO SPARTAN EP 220 (200 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 SPARTAN EP 220, however, a fluid match indicates that this fluid is ISO 100 ISO AW Hydraulic Oil (Hi-Visc). Please confirm the oil type and grade on your next sample.

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL
Zinc	ppm	ASTM D5185(m)		▲ **257**	▲ 263	▲ 271
Sulfur	ppm	ASTM D5185(m)		▲ **5633**	▲ 5296	▲ 5401
Visc @ 40°C	cSt	ASTM D7279(m)		▲ **109**	▲ 109	▲ 108

Customer Id: INCCRE
Sample No.: WC0246612
Lab Number: 01829664
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 SPARTAN EP 220, however, a fluid match indicates that this fluid is ISO 100 AW Hydraulic Oil (Hi-Visc). 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

28 Mar 2013 Diag: Bill Quesnel

VISCOSITY

Confirm the source of the lubricant being utilized for top-up/fill. 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. Viscosity of sample indicates oil is within ISO 100 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The TAN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

03 Jan 2013 Diag: Bill Quesnel

VISCOSITY

Confirm the source of the lubricant being utilized for top-up/fill. 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. Viscosity of sample indicates oil is within ISO 100 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The TAN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

19 Jul 2012 Diag: Bill Quesnel

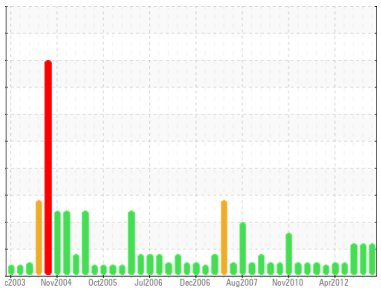
NORMAL

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

view report

OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY

Area
Industrial Mechanical/Hoists
Machine Id
17-SKHST9-LUBE
Component
Bearing Lube
Fluid
ESSO SPARTAN EP 220 (200 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 SPARTAN EP 220, however, a fluid match indicates that this fluid is ISO 100 ISO AW Hydraulic Oil (Hi-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

Viscosity of sample indicates oil is within ISO 100 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The TAN 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		**WC0246612**	WC0241744	WC0241734
Sample Date		Client Info		**07 Apr 2013**	28 Mar 2013	03 Jan 2013
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**Changed**	Changed	Not Changd
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method		**NEG**	NEG	NEG

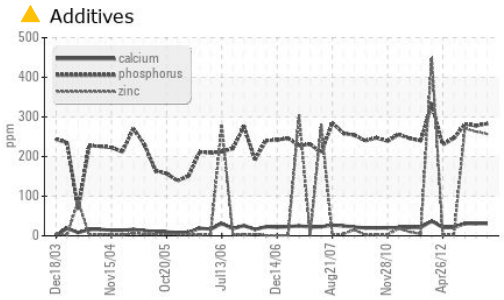
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)		**<1**	<1	<1
Chromium	ppm	ASTM D5185(m)		**0**	0	0
Nickel	ppm	ASTM D5185(m)		**0**	0	0
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**<1**	<1	<1
Aluminum	ppm	ASTM D5185(m)		**<1**	<1	0
Lead	ppm	ASTM D5185(m)		**2**	1	<1
Copper	ppm	ASTM D5185(m)		**1**	1	<1
Tin	ppm	ASTM D5185(m)		**17**	17	14
Antimony	ppm	ASTM D5185(m)		**<1**	<1	<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

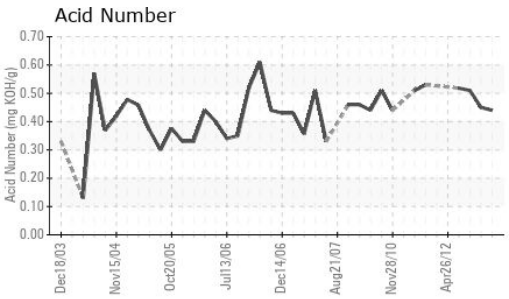
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**4**	4	4
Barium	ppm	ASTM D5185(m)		**<1**	<1	<1
Molybdenum	ppm	ASTM D5185(m)		**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)		**0**	0	<1
Calcium	ppm	ASTM D5185(m)		**31**	31	31
Phosphorus	ppm	ASTM D5185(m)		**283**	278	282
Zinc	ppm	ASTM D5185(m)		▲ **257**	▲ 263	▲ 271
Sulfur	ppm	ASTM D5185(m)		▲ **5633**	▲ 5296	▲ 5401
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

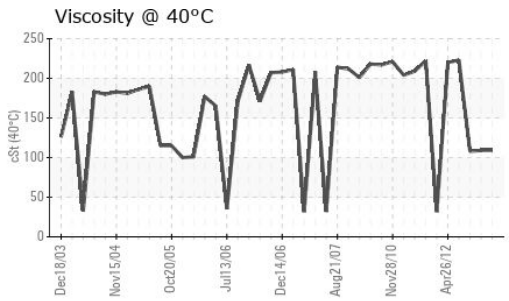
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)		**<1**	<1	<1
Sodium	ppm	ASTM D5185(m)		**<1**	<1	0
Potassium	ppm	ASTM D5185(m)		**0**	0	<1

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**17312**	2289	12426
Particles >6µm		ASTM D7647		**1522**	66	710
Particles >14µm		ASTM D7647		**88**	7	63
Particles >21µm		ASTM D7647		**25**	2	20
Particles >38µm		ASTM D7647		**1**	0	1
Particles >71µm		ASTM D7647		**0**	0	0
Oil Cleanliness		ISO 4406 (c)		**21/18/14**	18/13/10	21/17/13

OIL ANALYSIS REPORT



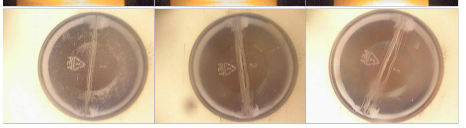




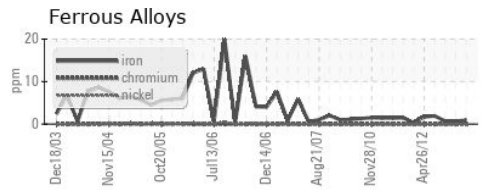
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		**0.44**	0.45	0.51

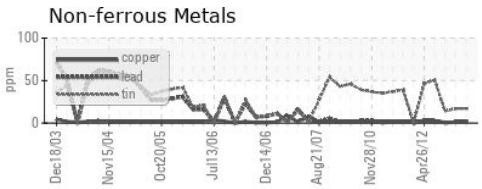
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Debris	scalar	Visual*	NONE	**VLITE**	VLITE	VLITE
Sand/Dirt	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

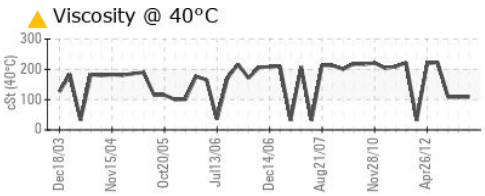
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)		▲ **109**	▲ 109	▲ 108
Fluid Type		In-house*		***ISO_HYD_AW_HI**	UNKNOWN	UNKNOWN

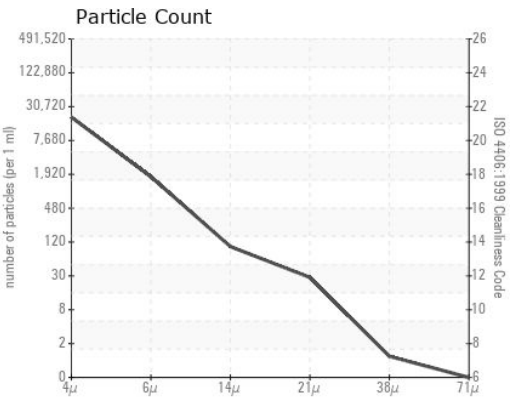
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

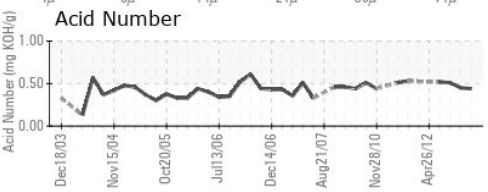
GRAPHS











ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0246612 **Received** : 10 Apr 2013
Lab Number : 01829664 **Diagnosed** : 11 Apr 2013
Unique Number : 3690449 **Diagnostician** : Bill Quesnel
Test Package : IND 2 (Additional Tests: FluidDetermination, PrtCount)

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
CREIGHTON MINE MNTCE. (PLANT 17)
COPPER CLIFF, ON
CA P0M 1N0
Contact: Igor Bozhyk
igor.bozhyk@vale.com
T: (705)682-7009
F: x: