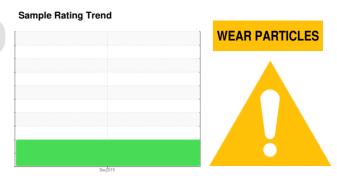


OIL ANALYSIS REPORT

[70088271] WHPU OIL FILTER (S/N CA-58603)

Filter

{not provided} (--- LTR)



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. This is a baseline read-out on the submitted sample.

Wear Particles

Wear particle analysis indicates that the ferrous spheres particles are abnormal. There spheres were of multiple sizes and had a dark oxidized layer on them indicating these particles may be from recent soldering work performed.

Contaminants

The filter contained only normal levels of contaminants, and debris. All filter contaminant levels are normal.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PC		
Sample Date		Client Info		17 Dec 2019		
Machine Age	hrs	Client Info		0		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		N/A		
Sample Status				ABNORMAL		
CONTAMINATI	ON	method	limit/base	current	history1	history2
Water		WC Method		NEG		
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)		52		
Chromium	ppm	ASTM D5185(m)		4		
Nickel	ppm	ASTM D5185(m)		6		
Copper	ppm	ASTM D5185(m)		1		
Vanadium	ppm	ASTM D5185(m)		<1		
FERROGRAPH	ΙΥ	method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		4		
Ferrous Sliding	Scale 0-10	ASTM D7684*		1		
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		2		
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*		<u>^</u> 2		
Ferrous Black Oxides	Scale 0-10	ASTM D7684*				
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*				
Ferrous Other	Scale 0-10	ASTM D7684*				
Nonferrous Rubbing	Scale 0-10	ASTM D7684*				
Nonferrous Sliding	Scale 0-10	ASTM D7684*				
Nonferrous Cutting	Scale 0-10	ASTM D7684*				
Nonferrous Rolling	Scale 0-10	ASTM D7684*				
Nonferrous Other	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		1		
Fibres	Scale 0-10	ASTM D7684*		1		
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		3		
Patch Weight	mg	ASTM D7684*		31		
ADDITIVES		method	limit/base	current	history1	history2
Molybdenum	ppm	ASTM D5185(m)		<1		
Manganese	ppm	ASTM D5185(m)		<1		
CONTAMINAN	TS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)		2		

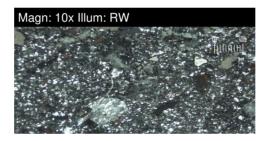


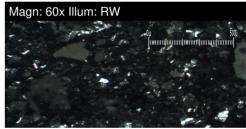
OIL ANALYSIS REPORT

VISUAL		method	limit/base	current	history1	history2
VISUAL		method	IIIIII/Dase	Current	Thistory	HISTOTYZ
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		
Odor	scalar	Visual*	NORML	NORML		
Emulsified Water	scalar	Visual*		NEG		
Free Water	scalar	Visual*		NEG		
SAMPLE IMAGES		method	limit/base	current	history1	history2
				DOES IT IN		

Color no image no image Bottom no image no image

GRAPHS







CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. : PC

Lab Number : 02330621 Unique Number : 4981924

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9

Received : 08 Jan 2020 Tested : 13 Jan 2020 Diagnosed

: 13 Jan 2020 - Kevin Marson

Suncor - Terra Nova Projects Scotia Centre, 235 Water Strret St. John's, NL CA A1C 1B6

Test Package: FLTRO (Additional Tests: ICP, ICP-DIGEST, KV40, PrtCount, Spat, TAN Auto, Visuational Tests: Josh Hynes joshynes@suncor.com

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.

T: (709)778-3575 F: (709)724-2835

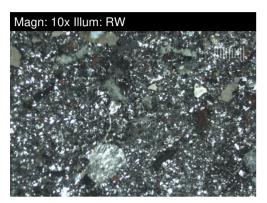


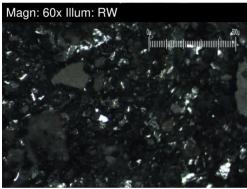
FILTER REPORT

[70088271]

WHPU OIL FILTER (S/N CA-58603) Component Filter

{not provided} (--- LTR)





FERROGRAPH	łΥ	method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		4		
Ferrous Sliding	Scale 0-10	ASTM D7684*		1		
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		2		
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*		<u>^</u> 2		
Ferrous Black Oxides	Scale 0-10	ASTM D7684*				
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*				
Ferrous Other	Scale 0-10	ASTM D7684*				
Nonferrous Rubbing	Scale 0-10	ASTM D7684*				
Nonferrous Sliding	Scale 0-10	ASTM D7684*				
Nonferrous Cutting	Scale 0-10	ASTM D7684*				
Nonferrous Rolling	Scale 0-10	ASTM D7684*				
Nonferrous Other	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		1		
Fibres	Scale 0-10	ASTM D7684*		1		
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		3		
Patch Weight	mg	ASTM D7684*		31		

WEAR

Wear particle analysis indicates that the ferrous spheres particles are abnormal. There spheres were of multiple sizes and had a dark oxidized layer on them indicating these particles may be from recent soldering work performed.

This page left intentionally blank