

## Machine Id LIEBHERR LH30M 144578-1253 Component

Transmission (Manual)

PETRO CANADA 10W40 (--- GAL)

RE		

Resample at the next service interval to monitor.

## **WEAR**

All component wear rates are normal.

## CONTAMINATION

There is no indication of any contamination in the fluid.

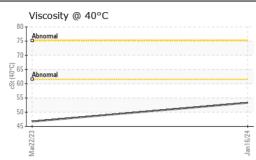
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ILU			

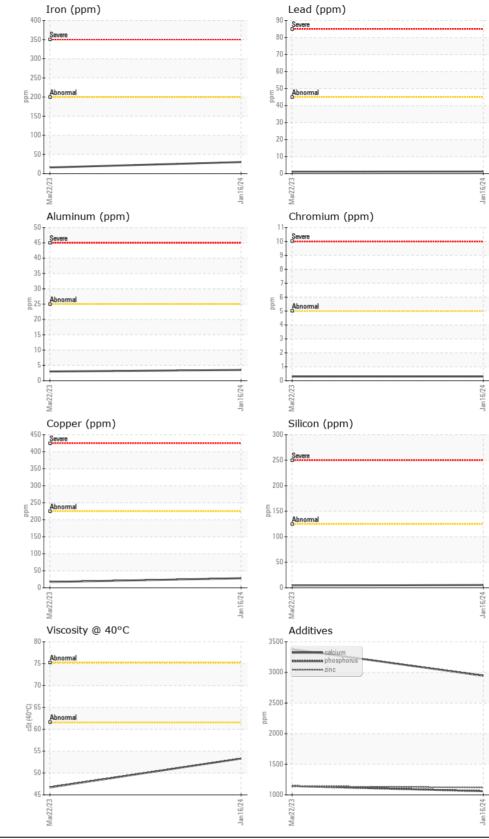
Viscosity of sample indicates oil is within SAE 20 range, advise investigate. The condition of the fluid is acceptable for the time in service.

TestUOMMethodLimi/AnCurrentHistory1History2Sample NumberClient InfoIH0278617LH0250056Sample DateClient InfoI6 Jan 202422 Mar 2023Machine AgehrsClient Info00Filter AgehrsClient InfoO0Filter AgehrsClient InfoNa ChangedChangedGli ChangedClient InfoNa KorChangdChangedFilter ChangedClient InfoNAN/AN/ASample StatusNorRMALNORMALIronppmASTMD5185(m)>5<1<1NickelppmASTMD5185(m)>5<1<1NickelppmASTMD5185(m)>5<1<1SilverppmASTMD5185(m)>5<1<1AluminumppmASTMD5185(m)>10<1<<NordaulumppmASTMD5185(m)>10<1<<VanadiumppmASTMD5185(m)>10<1<<Yellow MetalscalarVisual*NONENONENONE<Yellow MetalscalarVisual*NORENONENONE<SiliconppmASTMD5185(m)>2033Yellow MetalscalarVisual*NORENONENONE-	L)						
Sample DateClient InfoI6 Jan 202422 Mar 2023Machine AgehrsClient Info1200498Oil AgehrsClient Info00Filter AgehrsClient InfoNot ChangedChangedOil ChangedClient InfoNot ChangedChangedFilter ChangedClient InfoNot ChangedChangedGli ChangedClient InfoNot ChangedSample StatusClient InfoNot NAMIronppmASTMD5186(m)>2003016ChromiumppmASTMD5186(m)>5<1<1NickelppmASTMD5186(m)>5<1<1SilverppmASTMD5186(m)>700AluminumppmASTMD5186(m)>10<1<VanadiumppmASTMD5186(m)>10<1<VanadiumppmASTMD5186(m)>10<1<Yellow MetalscalarVisual*NONENONENONE<SiliconppmASTMD5186(m)>12S4Yellow MetalscalarVisual*NONENONENONE<SiliconppmASTMD5186(m)>2033Yellow MetalscalarVisual*NONENONENONESilicon <t< th=""><th>Test</th><th>UOM</th><th>Method</th><th>Limit/Abn</th><th>Current</th><th>History1</th><th>History2</th></t<>	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine AgehrsClient InfoI 200498Oil AgehrsClient Info00Filter AgehrsClient InfoNot ChangedChangedOil ChangedClient InfoN/AN/AN/AFilter ChangedOClient InfoN/AN/ASample StatusNORMALNORMALIronppmASTM05185(m)>2003016ChromiumppmASTM05185(m)>5<1<1NickelppmASTM05185(m)>5<1<1SilverppmASTM05185(m)>700AluminumppmASTM05185(m)>22543LeadppmASTM05185(m)>2252817VanadiumppmASTM05185(m)>10<1<1VanadiumppmASTM05185(m)>10<1<1VanadiumppmASTM05185(m)>12554SiliconppmASTM05185(m)>12554SiliconppmASTM05185(m)>2033SiliconppmASTM05185(m)>2033SiliconppmASTM05185(m)>2033SiliconppmASTM05185(m)>2033S	Sample Number		Client Info		LH0278617	LH0250056	
Oil Age Filter AgehrsClient Info00Filter AgehrsClient InfoNot ChangedChangedOil ChangedClient InfoN/AN/AFilter ChangedQClient InfoN/AN/ASample StatusNORMALNORMALIronppmASTM05185(m)>2003016ChromiumppmASTM05185(m)>5<1<1NickelppmASTM05185(m)>5<1<SilverppmASTM05185(m)>700AluminumppmASTM05185(m)>22543LeadppmASTM05185(m)>10<1<VanduiumppmASTM05185(m)>10<1<VanduiumppmASTM05185(m)>10<1<ValduiumppmASTM05185(m)>12554ValduiumppmASTM05185(m)>2033SiliconppmASTM05185(m)>2033SiliconppmASTM05185(m)>2033SiliconppmASTM05185(m)>2033SiliconppmASTM05185(m)>2033SiliconppmASTM05185(m)>2033 <th>Sample Date</th> <th></th> <th>Client Info</th> <th></th> <th>16 Jan 2024</th> <th>22 Mar 2023</th> <th></th>	Sample Date		Client Info		16 Jan 2024	22 Mar 2023	
Filter Age Oli Changedr00Oil ChangedClient InfoNot ChangedChangedFilter ChangedClient InfoN/AN/ANSample StatusNORMALNORMALIronppmASTM D5185(m) >2003016ChromiumppmASTM D5185(m) >5<1<1NickelppmASTM D5185(m) >5<1<1NickelppmASTM D5185(m) >700AluminumppmASTM D5185(m) >743AluminumppmASTM D5185(m) >2252817VanadiumppmASTM D5185(m) >10<1<1VanadiumppmASTM D5185(m) >10<1<Yellow MetalscalarVisual*NONENONENONESiliconppmASTM D5185(m) >12554SiliconppmASTM D5185(m) >12554SiliconppmASTM D5185(m) >12533SiliconppmASTM D5185(m) >12554SiliconppmASTM D5185(m) >12554SiliconppmASTM D5185(m) >12554SiliconppmASTM D5185(m) >2033SiliconppmASTM D5185(m) >2033Silicons	Machine Age	hrs	Client Info		1200	498	
Oil Changed Filter ChangedClient InfoNot Changed N/AChanged Filter ChangedClient InfoN/AN/ASample StatusNORMALNORMALIronppmASTM D5185(m)>2003016ChromiumppmASTM D5185(m)>5<1<1NickelppmASTM D5185(m)>5<1<1SilverppmASTM D5185(m)>700<AluminumppmASTM D5185(m)>743LeadppmASTM D5185(m)>4511CopperppmASTM D5185(m)>10<1<1VanadiumppmASTM D5185(m)>10<1<1VanadiumppmASTM D5185(m)>10<1<1Veltow MetalscalarVisual*NONENONENONESiliconppmASTM D5185(m)>12554SiliconppmASTM D5185(m)>10NORENONESiliconscalarVisual*NONENONENONESiliconppmASTM D5185(m)>1NORENONESoliconppmASTM D5185(m)>2033SoliconppmASTM D5185(m)>203SoliconppmASTM D5185(m)>20	Oil Age	hrs	Client Info		0	0	
Filter Changed  Client Info  NA  N/A  N/A    Sample Status  Client Info  NA  NORMAL  NORMAL     Iron  ppm  ASTM D5185(m)  >200  30  16     Chromium  ppm  ASTM D5185(m)  >5  <1  <1     Nickel  ppm  ASTM D5185(m)  >5  <1  <1     Nickel  ppm  ASTM D5185(m)  >5  <1  <1     Silver  ppm  ASTM D5185(m)  >7  0  0     Aluminum  ppm  ASTM D5185(m)  >7  0  0     Vanadium  ppm  ASTM D5185(m)  >10  <1      Vanadium  ppm  ASTM D5185(m)  >10  <1      Vanadium  ppm  ASTM D5185(m)  >10  <1      Vanadium  ppm  ASTM D5185(m)  >10  NONE<	Filter Age	hrs	Client Info		0	0	
Sample StatusNORMALNORMALNORMALIronppmASTM D5185(m)>2003016ChromiumppmASTM D5185(m)>5<1<1NickelppmASTM D5185(m)>5<1<1TitaniumppmASTM D5185(m)>5<1<1SilverppmASTM D5185(m)>700AluminumppmASTM D5185(m)>2543LeadppmASTM D5185(m)>2252817CopperppmASTM D5185(m)>10<1YanadiumppmASTM D5185(m)>10<1YanadiumppmASTM D5185(m)>10<1Yellow MetalscalarVisual*NONENONENONESiliconppmASTM D5185(m)>2033SiliconppmASTM D5185(m)>2033SilitscalarVisual*NONENONENONESand/DirtscalarVisual*NORNORMNORMAppearancescalarVisual*NORNORMNORMSodiumppmASTM D5185(m)>203249MagnaeseppmASTM D5185(m)334SodiumppmASTM D5185(m)<1620 <th>Oil Changed</th> <th></th> <th>Client Info</th> <th></th> <th>Not Changd</th> <th>Changed</th> <th></th>	Oil Changed		Client Info		Not Changd	Changed	
Iron  ppm  ASTM D5185(m)  >200  30  16     Chromium  ppm  ASTM D5185(m)  >5  <1  <1     Nickel  ppm  ASTM D5185(m)  >5  <1  <1     Titanium  ppm  ASTM D5185(m)  >7  0  0     Aluminum  ppm  ASTM D5185(m)  >25  4  3     Aluminum  ppm  ASTM D5185(m)  >25  4  3     Aluminum  ppm  ASTM D5185(m)  >25  28  17     Copper  ppm  ASTM D5185(m)  >10  <1      Vanadium  ppm  ASTM D5185(m)  >10  <1      Vanadium  ppm  ASTM D5185(m)  >10  <1      Vanadium  ppm  ASTM D5185(m)  >10  0  <1     Vanadium  ppm  ASTM	Filter Changed		Client Info		N/A	N/A	
Chromium  ppm  ASTM D5185(m)  >5  <1	Sample Status				NORMAL	NORMAL	
Chromium  ppm  ASTM D5185(m)  >5  <1						40	
Nickel  ppm  ASTM D5185(m)  >5  <1	-		( )			-	
Titanium  ppm  ASTM D5185(m)  >  0  <1			· /				
Silver  ppm  ASTM D5185(m)  >7  0  0     Aluminum  ppm  ASTM D5185(m)  >25  4  3     Lead  ppm  ASTM D5185(m)  >45  1  1     Copper  ppm  ASTM D5185(m)  >225  28  17     Tin  ppm  ASTM D5185(m)  >10  <1				>5			
Aluminum  ppm  ASTM D5185(m)  >25  4  3     Lead  ppm  ASTM D5185(m)  >45  1  1     Copper  ppm  ASTM D5185(m)  >225  28  17     Tin  ppm  ASTM D5185(m)  >10  <1  <1     Vanadium  ppm  ASTM D5185(m)  >10  <1  <     White Metal  scalar  Visual*  NONE  NONE  VLITE     Yellow Metal  scalar  Visual*  NONE  NONE  NONE     Silicon  ppm  ASTM D5185(m)  >125  5  4     Solicon  ppm  ASTM D5185(m)  >20  3  3     Silicon  ppm  ASTM D5185(m)  >20  3  3     Solit  scalar  Visual*  NORE  NORE      Debris  scalar  Visual*<				-	-		
Lead  ppm  ASTM D5185(m)  >45  1  1     Copper  ppm  ASTM D5185(m)  >225  28  17     Tin  ppm  ASTM D5185(m)  >10  <1  <1     Vanadium  ppm  ASTM D5185(m)  >10  <1  <1     Vanadium  ppm  ASTM D5185(m)  >10  <1  <1     White Metal  scalar  Visual*  NONE  NONE  VLITE     Yellow Metal  scalar  Visual*  NONE  NONE  NONE     Silicon  ppm  ASTM D5185(m)  >125  5  4     Silicon  ppm  ASTM D5185(m)  >20  3  3     Silicon  ppm  ASTM D5185(m)  >20  3  3     Silit  scalar  Visual*  NONE  NONE  NONE     Debris  scalar  Vi			( )		-	-	
Copper  pp  ASTM D5185(m)  >225  28  17     Tin  ppm  ASTM D5185(m)  >10  <1  <1     Vanadium  ppm  ASTM D5185(m)  >10  0  <1     White Metal  scalar  Visual*  NONE  NONE  VLITE     Yellow Metal  scalar  Visual*  NONE  NONE  NONE     Silicon  ppm  ASTM D5185(m)  >125  5  4     Silicon  ppm  ASTM D5185(m)  >20  3  3     Silicon  ppm  ASTM D5185(m)  >20  3  3     Silicon  ppm  ASTM D5185(m)  >20  3  3     Silit  scalar  Visual*  NONE  NONE  NONE     Debris  scalar  Visual*  NORML  NORML  NORML     Appearance  scalar					-		
Tin  ppm  ASTM D5185(m)  >10  <1					-	-	
Vanadium  ppm  ASTM D5185(m)  0  <1					-		
White Metal Yellow MetalscalarVisual*NONENONEVUITEYellow MetalscalarVisual*NONENONENONENONESiliconppmASTM D5185(m)>12554PotassiumppmASTM D5185(m)>2033WaterWC Method>0.1NEGNEGSilitscalarVisual*NONENONENONEDebrisscalarVisual*NONENONENONESand/DirtscalarVisual*NORENORMLNORMLAppearancescalarVisual*NORMNORMLNORMLOdorscalarVisual*NORMNORMLNORMLSodiumppmASTM D5185(m)>203249BoronppmASTM D5185(m)>203249MolybdenumppmASTM D5185(m)<<1110ManganeseppmASTM D5185(m)<1620MagnesiumppmASTM D5185(m)10601144PhosphorusppmASTM D5185(m)11191143SulfurppmASTM D5185(m)66307924				>10			
Yellow Metal  scalar  Visual*  NONE  NONE  NONE  NONE     Silicon  ppm  ASTM D5185(m)  >125  5  4     Potassium  ppm  ASTM D5185(m)  >20  3  3     Water  WC Method  >0.1  NEG  NEG     Silt  scalar  Visual*  NONE  NONE  NONE     Debris  scalar  Visual*  NONE  NONE  NONE     Sand/Dirt  scalar  Visual*  NONE  NORML  NORML     Appearance  scalar  Visual*  NORML  NORML  NORML     Godor  scalar  Visual*  NORML  NORML  NORML     Boron  ppm  ASTM D5185(m)  >20  32  49     Molybdenum  ppm  ASTM D5185(m)  <  <1  1     Manganese  ppm							
SiliconppmASTM D5185(m)>12554PotassiumppmASTM D5185(m)>2033WaterWC Method>0.1NEGNEGSiltscalarVisual*NONENONENONENONEDebrisscalarVisual*NONENONENONESand/DirtscalarVisual*NONELIGHTVLITEAppearancescalarVisual*NORMLNORMLNORMLNORMLOdorscalarVisual*NORMLNORMLNORMLNORMLNORMLSodiumppmASTM D5185(m)>203249BoronppmASTM D5185(m)>20334MolybdenumppmASTM D5185(m)<					-		
Potassium  ppm  ASTM D5185(m)  >20  3  3     Water  WC Method  >0.1  NEG  NEG     Silt  scalar  Visual*  NONE  NONE  NONE     Debris  scalar  Visual*  NONE  NONE  NONE     Sand/Dirt  scalar  Visual*  NONE  LIGHT  VLITE     Appearance  scalar  Visual*  NORML  NORML  NORML     Odor  scalar  Visual*  NORML  NORML  NORML     Godr  scalar  Visual*  NORML  NORML  NORML     Sodium  ppm  ASTM D5185(m)  >20  32  49     Boron  ppm  ASTM D5185(m)  >20  33  4     Molybdenum  ppm  ASTM D5185(m)  <11  1     Magnesium  ppm  ASTM D5185(m)  16<	Yellow Metal	scalar	Visual*	NONE	NONE	NONE	
WaterWC Method>0.1NEGNEGSiltscalarVisual*NONENONENONEDebrisscalarVisual*NONENONENONESand/DirtscalarVisual*NONELIGHTVLITEAppearancescalarVisual*NORMLNORMLNORMLOdorscalarVisual*NORMLNORMLNORMLEmulsified WaterscalarVisual*>0.1NEGNEGSodiumppmASTM D5185(m)>203249BoronppmASTM D5185(m)>20334MolybdenumppmASTM D5185(m)<11MagnesiumppmASTM D5185(m)1620PhosphorusppmASTM D5185(m)10010ZincppmASTM D5185(m)10601144SulfurppmASTM D5185(m)1066307924	Silicon	ppm	ASTM D5185(m)	>125	5	4	
SiltscalarVisual*NONENONENONEDebrisscalarVisual*NONENONENONESand/DirtscalarVisual*NONELIGHTVLITEAppearancescalarVisual*NORMLNORMLNORMLOdorscalarVisual*NORMLNORMLNORMLOdorscalarVisual*NORMLNORMLNORMLEmulsified WaterscalarVisual*>0.1NEGNEGSodiumppmASTM D5185(m)>203249BoronppmASTM D5185(m)334BariumppmASTM D5185(m)<11MolybdenumppmASTM D5185(m)<1620MagnesiumppmASTM D5185(m)10010CalciumppmASTM D5185(m)10601144PhosphorusppmASTM D5185(m)11191143SulfurppmASTM D5185(m)66307924	Potassium	ppm	ASTM D5185(m)	>20	3	3	
DebrisscalarVisual*NONENONENONESand/DirtscalarVisual*NORLIGHTVLITEAppearancescalarVisual*NORMLNORMLNORMLNORMLOdorscalarVisual*NORMLNORMLNORMLNORMLEmulsified WaterscalarVisual*>0.1NEGNEGSodiumppmASTM D5185(m)>203249BoronppmASTM D5185(m)<334BariumppmASTM D5185(m)<<111MolybdenumppmASTM D5185(m)<1620MagnesiumppmASTM D5185(m)<1010CalciumppmASTM D5185(m)10601144PhosphorusppmASTM D5185(m)11191143SulfurppmASTM D5185(m)66307924	Water		WC Method	>0.1	NEG	NEG	
Sand/DirtscalarVisual*NONELIGHTVLITEAppearancescalarVisual*NORMLNORMLNORMLNORMLOdorscalarVisual*NORMLNORMLNORMLNORMLEmulsified WaterscalarVisual*>0.1NEGNEGSodiumppmASTM D5185(m)>203249BoronppmASTM D5185(m)334BariumppmASTM D5185(m)<1<1MolybdenumppmASTM D5185(m)<1620MagnesiumppmASTM D5185(m)10010CalciumppmASTM D5185(m)10601144PhosphorusppmASTM D5185(m)111191143SulfurppmASTM D5185(m)66307924	Silt	scalar	Visual*	NONE	NONE	NONE	
AppearancescalarVisual*NORMLNORMLNORMLNORMLNORMLOdorscalarVisual*NORMLNORMLNORMLNORMLEmulsified WaterscalarVisual*>0.1NEGNEGSodiumppmASTM D5185(m)>203249BoronppmASTM D5185(m)>20334BariumppmASTM D5185(m)<<1<1MolybdenumppmASTM D5185(m)<<111ManganeseppmASTM D5185(m)<16200CalciumppmASTM D5185(m)<10010PhosphorusppmASTM D5185(m)10601144ZincppmASTM D5185(m)11191143SulfurppmASTM D5185(m)66307924	Debris	scalar	Visual*	NONE	NONE	NONE	
OdorscalarVisual*NORMLNORMLNORMLIEmulsified WaterscalarVisual*>0.1NEGNEGSodiumppmASTM D5185(m)>203249BoronppmASTM D5185(m)334BariumppmASTM D5185(m)<1<1MolybdenumppmASTM D5185(m)<11MagneseppmASTM D5185(m)1620MagnesiumppmASTM D5185(m)1010CalciumppmASTM D5185(m)10601144PhosphorusppmASTM D5185(m)11191143SulfurppmASTM D5185(m)66307924	Sand/Dirt	scalar	Visual*	NONE	LIGHT	VLITE	
Emulsified Water  scalar  Visual*  >0.1  NEG  NEG     Sodium  ppm  ASTM D5185(m)  >20  32  49     Boron  ppm  ASTM D5185(m)  >20  33  4     Barium  ppm  ASTM D5185(m)   <1  <1     Molybdenum  ppm  ASTM D5185(m)   <11  1     Manganese  ppm  ASTM D5185(m)   16  20     Magnesium  ppm  ASTM D5185(m)  10  10     Calcium  ppm  ASTM D5185(m)  2945  3379     Phosphorus  ppm  ASTM D5185(m)  1060  1144     Zinc  ppm  ASTM D5185(m)  11119  1143     Sulfur  ppm  ASTM D5185(m)  6630  7924	Appearance	scalar	Visual*	NORML	NORML	NORML	
Sodium  ppm  ASTM D5185(m)  >20  32  49     Boron  ppm  ASTM D5185(m)  33  4     Barium  ppm  ASTM D5185(m)  <1  <1     Molybdenum  ppm  ASTM D5185(m)  <1  1     Manganese  ppm  ASTM D5185(m)  16  20     Magnesium  ppm  ASTM D5185(m)  10  10     Calcium  ppm  ASTM D5185(m)  2945  3379     Phosphorus  ppm  ASTM D5185(m)  1060  1144     Zinc  ppm  ASTM D5185(m)  1119  1143     Sulfur  ppm  ASTM D5185(m)  6630  7924	Odor	scalar	Visual*	NORML	NORML	NORML	
Boron  ppm  ASTM D5185(m)  33  4     Barium  ppm  ASTM D5185(m)  <1  <1     Molybdenum  ppm  ASTM D5185(m)  <1  1     Manganese  ppm  ASTM D5185(m)  16  20     Magnesium  ppm  ASTM D5185(m)  10  10     Calcium  ppm  ASTM D5185(m)  100  10     Phosphorus  ppm  ASTM D5185(m)  1060  1144     Zinc  ppm  ASTM D5185(m)  1119  1143     Sulfur  ppm  ASTM D5185(m)  6630  7924	Emulsified Water	scalar	Visual*	>0.1	NEG	NEG	
Barium  ppm  ASTM D5185(m)  <1	Sodium	ppm	ASTM D5185(m)	>20	32	49	
Molybdenum  ppm  ASTM D5185(m)  <1	Boron	ppm	ASTM D5185(m)		33	4	
Manganese  ppm  ASTM D5185(m)  16  20     Magnesium  ppm  ASTM D5185(m)  10  10     Calcium  ppm  ASTM D5185(m)  2945  3379     Phosphorus  ppm  ASTM D5185(m)  1060  1144     Zinc  ppm  ASTM D5185(m)  1119  1143     Sulfur  ppm  ASTM D5185(m)  6630  7924	Barium	ppm	ASTM D5185(m)		<1	<1	
Magnesium  ppm  ASTM D5185(m)  10  10     Calcium  ppm  ASTM D5185(m)  2945  3379     Phosphorus  ppm  ASTM D5185(m)  1060  1144     Zinc  ppm  ASTM D5185(m)  1119  1143     Sulfur  ppm  ASTM D5185(m)  6630  7924	Molybdenum	ppm	ASTM D5185(m)		<1	1	
Calcium  ppm  ASTM D5185(m)  2945  3379     Phosphorus  ppm  ASTM D5185(m)  1060  1144     Zinc  ppm  ASTM D5185(m)  1119  1143     Sulfur  ppm  ASTM D5185(m)  6630  7924	Manganese	ppm	ASTM D5185(m)		16	20	
Phosphorus  ppm  ASTM D5185(m)  1060  1144     Zinc  ppm  ASTM D5185(m)  1119  1143     Sulfur  ppm  ASTM D5185(m)  6630  7924	Magnesium	ppm	ASTM D5185(m)		10	10	
Zinc  ppm  ASTM D5185(m)  1119  1143     Sulfur  ppm  ASTM D5185(m)  6630  7924	Calcium	ppm	ASTM D5185(m)		2945	3379	
Zinc  ppm  ASTM D5185(m)  1119  1143     Sulfur  ppm  ASTM D5185(m)  6630  7924	Phosphorus	ppm	ASTM D5185(m)		1060	1144	
	Zinc		ASTM D5185(m)		1119	1143	
	Sulfur	ppm	ASTM D5185(m)		6630	7924	
	Visc @ 40°C		ASTM D7279(m)		53.3	46.7	

Report Id: IND550WIN [WCAMIS] 02609039 (Generated: 01/16/2024 16:18:54) Rev: 1

Submitted By: ?





**Industrial Metals** Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 CALA Sample No. Recieved : 16 Jan 2024 : LH0278617 Lab Number : 02609039 : 16 Jan 2024 Diagnosed ISO 17025:2017 Accredited Laboratory Unique Number : 5710125 Diagnostician : Kevin Marson Test Package : MOB 1 Contact: Service Manager To discuss this sample report, contact Customer Service at 1-800-268-2131. T: 

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.

F: