

OIL ANALYSIS REPORT

Sample Rating Trend

DIRT

NOVA 157 Component **Rear Transmission (Auto)**

CASTROL TRANSYND (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check all areas where dirt can enter the system. We recommend that you drain the fluid from the component if this has not already been done. We advise that you flush the component thoroughly before re-filling with fluid. We recommend an early resample to monitor this condition.

A Wear

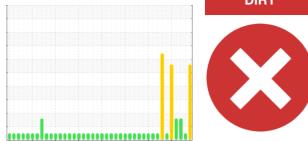
Iron ppm levels are abnormal. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

Contamination

High concentration of dirt present in the fluid. High amount of ingressed dirt has caused abrasive wear to the component.

Fluid Condition

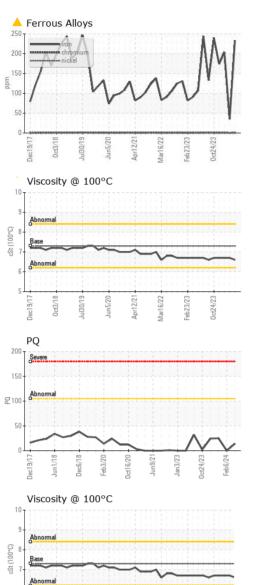
The AN level is acceptable for this fluid. The fluid is no longer serviceable as a result of the abnormal and/or severe wear.



Sample DateClient Info18 Mar 202406 Feb 202402 Feb 2024Machine AgekmsClient Info000Oil AgekmsClient Info18895819019585Oil ChangedClient InfoNot ChangdNot ChangdNot ChangdSample StatusSEVERENORMALABNORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2			c2017 Oct20	18 Jul2019 Jun2020	Apr2021 Mar2022 Feb2023	0ct2023	
Sample Date Client Info 18 Mar 2024 06 Feb 2024 02 Feb 2024 Machine Age kms Client Info 0 0 0 Oil Age kms Client Info 18895 8190 19585 Oil Changed Client Info Not Changd Not Changd Not Changd Sample Status Client Info Not Changd Not Changd ABNORMAL CONTAMINATION method imit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG VEAR METALS method imit/base current history1 history2 PQ ASTM D5185(m) >2.2 1 0 -1 1 Nickel ppm ASTM D5185(m) >5 1 -1 -1 1 1 Nickel ppm ASTM D5185(m) >5 3 2 2 2 2 2 2 2 2 2 2 2 2	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age kms Client Info 0 0 0 0 Oil Age kms Client Info 18895 8190 19585 Oil Changed Client Info Not Changd Not Changd Not Changd Sample Status Imit/Dase current history1 History2 Water WC Method >0.1 NEG NEG WEAR METALS method limit/base current history1 history2 PQ ASTM DB184' >105 14 0 25 Iron ppm ASTM DB186m >230 233 35 204 Chromium ppm ASTM DB186m >2 1 0 <1	Sample Number		Client Info		WC0889044	WC0889172	WC0889168
Oil Age kms Client Info 18895 8190 19585 Oil Changed Client Info Not Changd Not Changd Not Changd Sample Status Client Info SEVERE Not Changd Not Changd Water WC Method >0.1 NEG NEG NEG Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 PQ ASTM D8186(m) >20 233 35 204 Chromium ppm ASTM D5185(m) >2 <1	Sample Date		Client Info		18 Mar 2024	06 Feb 2024	02 Feb 2024
Oil Changed Sample Status Client Info Not Changd SEVERE Not Changd Not Changd Not Changd ABNORMAL Not Changd ABNORMAL CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 PQ ASTM D8168(m) >22 <1 0 <25 Iron ppm ASTM D8168(m) >22 <1 0 <1 Nickel ppm ASTM D5168(m) >5 0 0 0 Silver ppm ASTM D5168(m) >55 3 4 3 3 Copper ppm ASTM D5168(m) >55 1 1 1 Antimony ppm ASTM D5168(m) >55 1 1 1 Attimony ppm ASTM D5168(m) 0 0 0 0 Ead ppm ASTM D5168(m)	Machine Age	kms	Client Info		0	0	0
Sample Status SEVERE NORMAL ABNORMAL CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG Wear METALS method limit/base current history1 history2 PQ ASTM D8184* >105 14 0 25 Iron ppm ASTM D8186m >22 <1	Oil Age	kms	Client Info		18895	8190	19585
CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 PQ ASTM D8184/ >105 14 0 25 Iron ppm ASTM D5185(m) >22 -1 0 <1	Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 PQ ASTM D8184* >105 14 0 25 Iron ppm ASTM D5185(m) >230 233 35 204 Chromium ppm ASTM D5185(m) >55 <1	-				-	NORMAL	ABNORMAL
WEAR METALS method limit/base current history1 history2 PQ ASTM D8184' >105 14 0 25 Iron ppm ASTM D5185(m) >230 35 204 Chromium ppm ASTM D5185(m) >2 <1	CONTAMINATIO	N	method	limit/base	current	history1	history2
PQ ASTM D8184* >105 14 0 25 Iron ppm ASTM D5185(m) >230 ▲ 233 35 204 Chromium ppm ASTM D5185(m) >2 <1	Water		WC Method	>0.1	NEG	NEG	NEG
Iron ppm ASTM D5185(m) >230 ▲ 233 35 204 Chromium ppm ASTM D5185(m) >2 <1	WEAR METALS		method	limit/base	current	history1	history2
Chromium ppm ASTM D5185(m) >2 <1 0 <1 Nickel ppm ASTM D5185(m) >5 <1	PQ		ASTM D8184*	>105	14	0	25
Nickel ppm ASTM D5185(m) >5 <1 <1 <1 <1 Titanium ppm ASTM D5185(m) >2 0 0 0 Silver ppm ASTM D5185(m) >5 0 0 0 Aluminum ppm ASTM D5185(m) >65 30 22 22 Lead ppm ASTM D5185(m) >65 3 4 3 Copper ppm ASTM D5185(m) >5 1 1 1 Antimony ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 0 Boron ppm ASTM D5185(m) 0 0 <1	Iron	ppm	ASTM D5185(m)	>230	<u> </u>	35	204
Titanium ppm ASTM D5185(m) >2 0 0 0 Silver ppm ASTM D5185(m) >5 0 0 0 Aluminum ppm ASTM D5185(m) >65 30 22 22 Lead ppm ASTM D5185(m) >55 3 4 3 Copper ppm ASTM D5185(m) >55 1 1 1 Antimony ppm ASTM D5185(m) >5 1 1 1 Antimony ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 0 Bervilum ppm ASTM D5185(m) 0 3 4 4 Molydenum ppm ASTM D5185(m) 0 2 1 1 Magnesium ppm ASTM D5185(m) 20 233	Chromium	ppm	ASTM D5185(m)	>2	<1	0	<1
Silver ppm ASTM D5185(m) >5 0 0 0 Aluminum ppm ASTM D5185(m) >65 30 22 22 Lead ppm ASTM D5185(m) >55 3 4 3 Copper ppm ASTM D5185(m) >55 1 1 1 Tin ppm ASTM D5185(m) >5 1 1 1 Antimony ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 0 0 ADDITIVES method limit/base current history1 history2 Barium ppm ASTM D5185(m) 0 3 4 4 Magaenese ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m) 320 <td>Nickel</td> <td>ppm</td> <td>ASTM D5185(m)</td> <td>>5</td> <th><1</th> <td><1</td> <td><1</td>	Nickel	ppm	ASTM D5185(m)	>5	<1	<1	<1
Aluminum ppm ASTM D5185(m) >65 30 22 22 Lead ppm ASTM D5185(m) >55 3 4 3 Copper ppm ASTM D5185(m) >85 12 7 10 Tin ppm ASTM D5185(m) >5 1 1 1 Antimony ppm ASTM D5185(m) >5 1 1 1 Antimony ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 0 Cadmium ppm ASTM D5185(m) 150 71 61 73 Barium ppm ASTM D5185(m) 0 0 0 0 <11 Molybdenum ppm ASTM D5185(m) 0 3 4 4 Magnesium ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m)	Titanium	ppm	ASTM D5185(m)	>2	0	0	0
Lead ppm ASTM D5185(m) >55 3 4 3 Copper ppm ASTM D5185(m) >55 12 7 10 Tin ppm ASTM D5185(m) >55 1 1 1 Antimony ppm ASTM D5185(m) >5 1 1 1 Antimony ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) 150 71 61 73 Barium ppm ASTM D5185(m) 0 3 4 4 Marganese ppm ASTM D5185(m) 0 3 4 4 Marganese ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m) 320 232 <t< td=""><td>Silver</td><td>ppm</td><td>ASTM D5185(m)</td><td>>5</td><th>0</th><td>0</td><td>0</td></t<>	Silver	ppm	ASTM D5185(m)	>5	0	0	0
Copper ppm ASTM D5185(m) >85 12 7 10 Tin ppm ASTM D5185(m) >5 1 1 1 Antimony ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 0 0 0 -1 Molybdenum ppm ASTM D5185(m) 0 3 4 4 Magnesium ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m) 0 232 224 232 Zinc ppm ASTM D5185(m) 320 232 <t< td=""><td>Aluminum</td><td>ppm</td><td>ASTM D5185(m)</td><td>>65</td><th>30</th><td>22</td><td>22</td></t<>	Aluminum	ppm	ASTM D5185(m)	>65	30	22	22
Tin ppm ASTM D5185(m) >5 1 1 1 Antimony ppm ASTM D5185(m) 0 0 0 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) 0 0 0 0 <11 Molybdenum ppm ASTM D5185(m) 0 0 0 <11 1 Magnesium ppm ASTM D5185(m) 0 3 4 4 Magnesium ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m) 32.0 232 22.4 232 Zinc ppm ASTM D5185(m) 32.0 232 22.4 232 Zinc ppm ASTM D5185(m) 5 8 7 6	Lead	ppm	ASTM D5185(m)	>55	3	4	3
Antimony ppm ASTM D5185(m) 0 0 0 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) 150 71 61 73 Barium ppm ASTM D5185(m) 0 0 0 <11	Copper	ppm	ASTM D5185(m)	>85	12	7	10
Vanadium ppm ASTM D5185(m) 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 150 71 61 73 Barium ppm ASTM D5185(m) 0 0 0 0 Molybdenum ppm ASTM D5185(m) 0 3 4 4 Manganese ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m) 0 2 2 1 1 Calcium ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m) 320 232 224 232 Zinc ppm ASTM D5185(m) 5 8 <t< td=""><td>Tin</td><td>ppm</td><td>ASTM D5185(m)</td><td>>5</td><th>1</th><td>1</td><td>1</td></t<>	Tin	ppm	ASTM D5185(m)	>5	1	1	1
Beryllium ppm ASTM D5185(m) 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 150 71 61 73 Barium ppm ASTM D5185(m) 0 0 0 0 Molybdenum ppm ASTM D5185(m) 0 3 4 4 Manganese ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m) 0 2 2 1 1 Calcium ppm ASTM D5185(m) 320 232 224 232 Zinc ppm ASTM D5185(m) 5 8 7 6 Sulfur ppm ASTM D5185(m) 1050 <	Antimony	ppm	ASTM D5185(m)		0	0	0
Beryllium ppm ASTM D5185(m) 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 150 71 61 73 Barium ppm ASTM D5185(m) 0 0 0 0 11 Molybdenum ppm ASTM D5185(m) 0 3 4 4 Manganese ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m) 0 2 2 1 1 Calcium ppm ASTM D5185(m) 320 232 224 232 Zinc ppm ASTM D5185(m) 5 8 7 6 Sulfur ppm ASTM D5185(m) 1050	Vanadium	ppm	ASTM D5185(m)		0	0	0
CadmiumppmASTM D5185(m)000ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185(m)150716173BariumppmASTM D5185(m)000MolybdenumppmASTM D5185(m)0344ManganeseppmASTM D5185(m)0211MagnesiumppmASTM D5185(m)0211CalciumppmASTM D5185(m)40139128143PhosphorusppmASTM D5185(m)320232224232ZincppmASTM D5185(m)1050143613591617LithiumppmASTM D5185(m)>201<1	Beryllium	ppm	ASTM D5185(m)		0	0	0
Boron ppm ASTM D5185(m) 150 71 61 73 Barium ppm ASTM D5185(m) 0 0 0 <1	Cadmium	ppm	ASTM D5185(m)		0	0	0
Barium ppm ASTM D5185(m) 0 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185(m) 0 3 4 4 Manganese ppm ASTM D5185(m) 0 2 1 1 Magnesium ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m) 40 139 128 143 Phosphorus ppm ASTM D5185(m) 320 232 224 232 Zinc ppm ASTM D5185(m) 5 8 7 6 Sulfur ppm ASTM D5185(m) 1050 1436 1359 1617 Lithium ppm ASTM D5185(m) 1050 1436 1359 1617 Silicon ppm ASTM D5185(m) >20 31 5 29 Sodium ppm ASTM D5185(m) >20 31 5 4 4 Potassium ppm ASTM D5185(m) >20 1 3 2 FLUID DEGRADATION method	Boron	ppm	ASTM D5185(m)	150	71	61	73
Manganese ppm ASTM D5185(m) <1 0 <1 Magnesium ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m) 40 139 128 143 Phosphorus ppm ASTM D5185(m) 320 232 224 232 Zinc ppm ASTM D5185(m) 5 8 7 6 Sulfur ppm ASTM D5185(m) 1050 1436 1359 1617 Lithium ppm ASTM D5185(m) 1050 1436 1359 1617 Lithium ppm ASTM D5185(m) 1050 1436 1359 1617 Lithium ppm ASTM D5185(m) <	Barium	ppm	ASTM D5185(m)	0	0	0	<1
Magnesium ppm ASTM D5185(m) 0 2 1 1 Calcium ppm ASTM D5185(m) 40 139 128 143 Phosphorus ppm ASTM D5185(m) 320 232 224 232 Zinc ppm ASTM D5185(m) 5 8 7 6 Sulfur ppm ASTM D5185(m) 1050 1436 1359 1617 Lithium ppm ASTM D5185(m) 1050 1436 1359 1617 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >20 31 5 4 4 Potassium ppm ASTM D5185(m) >20 1 3 2 FLUID DEGRADATION method limit/base current history1 history2	Molybdenum	ppm	ASTM D5185(m)	0	3	4	4
Calcium ppm ASTM D5185(m) 40 139 128 143 Phosphorus ppm ASTM D5185(m) 320 232 224 232 Zinc ppm ASTM D5185(m) 5 8 7 6 Sulfur ppm ASTM D5185(m) 1050 1436 1359 1617 Lithium ppm ASTM D5185(m) 050 1436 1359 1617 Lithium ppm ASTM D5185(m) 050 1436 1359 1617 Solicon ppm ASTM D5185(m) >20 31 5 29 Sodium ppm ASTM D5185(m) >20 31 5 4 4 Potassium ppm ASTM D5185(m) >20 1 3 2 FLUID DEGRADATION method limit/base current history1 history2	Manganese	ppm	ASTM D5185(m)		<1	0	<1
Phosphorus ppm ASTM D5185(m) 320 232 224 232 Zinc ppm ASTM D5185(m) 5 8 7 6 Sulfur ppm ASTM D5185(m) 1050 1436 1359 1617 Lithium ppm ASTM D5185(m) 1050 1436 1359 1617 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >20 A 31 5 A 29 Sodium ppm ASTM D5185(m) >20 A 31 5 A 4 Potassium ppm ASTM D5185(m) >20 1 3 2 FLUID DEGRADATION method limit/base current history1 history2	Magnesium	ppm	ASTM D5185(m)	0	2	1	1
Zinc ppm ASTM D5185(m) 5 8 7 6 Sulfur ppm ASTM D5185(m) 1050 1436 1359 1617 Lithium ppm ASTM D5185(m) 1050 1436 1359 1617 Lithium ppm ASTM D5185(m) <	Calcium	ppm	ASTM D5185(m)	40	139	128	143
Zinc ppm ASTM D5185(m) 5 8 7 6 Sulfur ppm ASTM D5185(m) 1050 1436 1359 1617 Lithium ppm ASTM D5185(m) 1050 1436 1359 1617 Lithium ppm ASTM D5185(m) <			ASTM D5185(m)	320	232	224	232
LithiumppmASTM D5185(m)<1<1<1CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185(m)>20 31 5 2 9SodiumppmASTM D5185(m) 5 44PotassiumppmASTM D5185(m)>20 1 32FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2		ppm	ASTM D5185(m)	5	8	7	6
LithiumppmASTM D5185(m)<1<1<1CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185(m)>20 31 5 2 9SodiumppmASTM D5185(m) 5 44PotassiumppmASTM D5185(m)>20 1 32FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Sulfur	ppm	ASTM D5185(m)	1050	1436	1359	1617
Silicon ppm ASTM D5185(m) >20 31 5 29 Sodium ppm ASTM D5185(m) 5 4 4 Potassium ppm ASTM D5185(m) >20 1 3 2 FLUID DEGRADATION method limit/base current history1 history2	Lithium		ASTM D5185(m)		<1	<1	<1
SodiumppmASTM D5185(m)544PotassiumppmASTM D5185(m) >20132FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	CONTAMINANTS	3	method	limit/base	current	history1	history2
SodiumppmASTM D5185(m)544PotassiumppmASTM D5185(m) >20132FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Silicon	ppm	ASTM D5185(m)	>20	4 31	5	4 29
FLUID DEGRADATION method limit/base current history1 history2	Sodium		ASTM D5185(m)		5	4	4
			ASTM D5185(m)	>20			2
Acid Number (AN) mg KOH/g ASTM D974* 1.0 1.21 1.25 1.21	FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D974*	1.0	1.21	1.25	1.21



OIL ANALYSIS REPORT



nr12/7

Apr12/21

Dec19/1

Abnorma 45

Abnorma 30 2

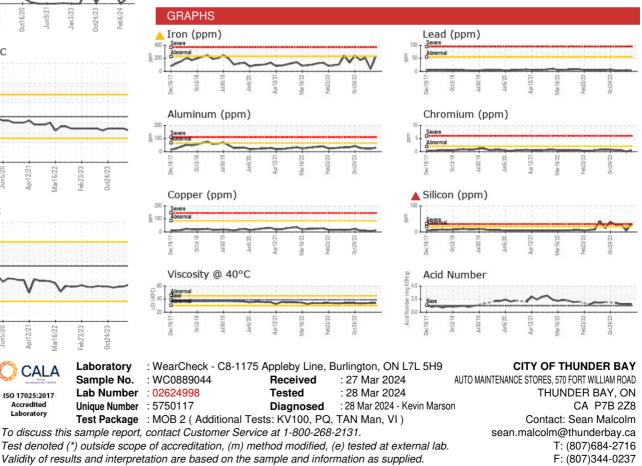
Dec19/17

50

(J. 40 (J. 40 25 35 B

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	VLITE
Debris	scalar	Visual*	NONE	NONE	NONE	NONE
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	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	38.9	34.2	33.8	33.7
Visc @ 40°C Visc @ 100°C	cSt cSt	ASTM D7279(m) ASTM D7279(m)	38.9 7.3	34.2 6.6	33.8 6.7	33.7 6.7
		. 7		-		
Visc @ 100°C	cSt Scale	ASTM D7279(m)	7.3	6.6	6.7	6.7
Visc @ 100°C Viscosity Index (VI)	cSt Scale	ASTM D7279(m) ASTM D2270*	7.3 168	6.6 151	6.7 159	6.7 160



Report Id: CITTHU [WCAMIS] 02624998 (Generated: 03/28/2024 14:21:08) Rev: 1

Contact/Location: Sean Malcolm - CITTHU