

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

414123 Component Diesel Engine Fluid

PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

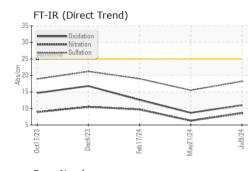
Fluid Condition

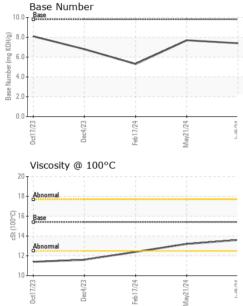
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number Client Info 09 Jul 2027 CH 012111 GFL0112111 GFL0112114 Sample Date Client Info 09 Jul 2024 21 May 2024 17 Feb 2024 Machine Age mis Client Info 36432 29609 18889 Oil Age Mis Client Info 36432 29609 18889 Oil Age Mis Client Info Not Changed Changed Changed Sample Status Nethod S <1.0 <1.0 NorMAL NORMAL CONTAMINATION method S <1.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG NEG Mater ppm ASIM 05185m >4.1 0 1 1 Norkei ppm ASIM 05185m >2 0 <1 1 Norkei ppm ASIM 05185m >2 0	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age mis Client Info 36432 29609 18889 Oil Age mis Client Info Not Changed Changed Changed Sample Status Imit/base current NotRMAL NORMAL NORMAL CONTAMINATION method imit/base current History1 History2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG Chromium ppm ASTM 05185 >10 40 16 63 Chromium ppm ASTM 05185 >2 0 <1 1 Nickel ppm ASTM 05185 >2 0 <1 1 1 Nickel ppm ASTM 05185 >2 0 <1 <1 1 Auminum ppm ASTM 05185 >2 0 <1 <1	Sample Number		Client Info		GFL0128727	GFL0112111	GFL0112114
Oil Age mis Client Info 36432 29609 18889 Oil Changed Client Info Not Changed Changed Changed Sample Status ContAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Weter WC Method >0.2 NEG NEG NEG Weter WC Method NEG NEG NEG NEG Weter WC Method NEG NEG NEG NEG Weter ppm ASTM D5185m >4 <1 0 1 1 Inckel ppm ASTM D5185m >2 0 <1 <1 1 Aluminum ppm ASTM D5185m 25 <1 2 2 Lead pm ASTM D5185m 0 <1 <1 1 1 1 1 <th>Sample Date</th> <th></th> <th>Client Info</th> <th></th> <th>09 Jul 2024</th> <th>21 May 2024</th> <th>17 Feb 2024</th>	Sample Date		Client Info		09 Jul 2024	21 May 2024	17 Feb 2024
Oil Changed Client Info Not Changed Changed Changed Sample Status Image NorRMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0	Machine Age	mls	Client Info		36432	29609	18889
Sample Status NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >110 40 16 63 Othromium ppm ASTM D5185m >2 0 <1 <1 Nickel ppm ASTM D5185m >2 0 <1 <1 Aluminum ppm ASTM D5185m >25 <1 2 2 Lead ppm ASTM D5185m >4 0 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 <1 <td< th=""><th>Oil Age</th><th>mls</th><th>Client Info</th><th></th><th>36432</th><th>29609</th><th>18889</th></td<>	Oil Age	mls	Client Info		36432	29609	18889
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method Imit/base current history1 history2 Iron ppm ASTM D5185m >10 40 16 63 Chromium ppm ASTM D5185m >2 0 <1 <1 Nickel ppm ASTM D5185m >2 0 <1 <1 Nickel ppm ASTM D5185m >2 0 <1 <1 Aluminum ppm ASTM D5185m >25 <1 2 2 Lead ppm ASTM D5185m >45 0 <1 <1 Vanadium ppm ASTM D5185m >4 0 <1 <1 Qandium ppm ASTM D5185m 0 <1 <1 <	Oil Changed		Client Info		Not Changd	Changed	Changed
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Chromium ppm ASTM D5185m >4 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Chromium ppm ASTM D5185m >4 <1	Iron	ppm	ASTM D5185m	>110	40	16	63
Titanium ppm ASTM D5185m 0 0 <1	Chromium	ppm	ASTM D5185m	>4	<1	0	1
Silver ppm ASTM D5185m >2 0 <1	Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum ppm ASTM D5185m >25 <1	Titanium		ASTM D5185m		0	0	<1
Lead ppm ASTM D5185m >45 0 <1	Silver	ppm	ASTM D5185m	>2	0	<1	<1
Copper ppm ASTM D5185m >85 <1	Aluminum	ppm	ASTM D5185m	>25	<1	2	2
Tin ppm ASTM D5185m >4 0 <1	Lead	ppm	ASTM D5185m	>45	0	<1	0
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Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 <1	Tin	ppm	ASTM D5185m	>4	0	<1	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 <1 <1 Barium ppm ASTM D5185m 0 0 0 <1 <1 Barium ppm ASTM D5185m 0 0 0 <1 <1 Malybdenum ppm ASTM D5185m 60 47 46 53 Manganese ppm ASTM D5185m 0 <1 1 1 Magnesium ppm ASTM D5185m 1010 12 12 57 Calcium ppm ASTM D5185m 1070 2506 2310 2259 Phosphorus ppm ASTM D5185m 1270 1259 1221 1149 Sulfur ppm ASTM D5185m 2060 3460 3325 2974 CONTAMINANTS method limit/base current history1 history2 Silicon ppm <t< th=""><th>Vanadium</th><th>ppm</th><th>ASTM D5185m</th><th></th><th>0</th><th>0</th><th>0</th></t<>	Vanadium	ppm	ASTM D5185m		0	0	0
Boron ppm ASTM D5185m 0 0 <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 0 0 <1							
Molybdenum ppm ASTM D5185m 60 47 46 53 Manganese ppm ASTM D5185m 0 <1 1 1 Magnesium ppm ASTM D5185m 1010 12 12 57 Calcium ppm ASTM D5185m 1010 12 12 57 Calcium ppm ASTM D5185m 1070 2506 2310 2259 Phosphorus ppm ASTM D5185m 1070 2506 2310 2259 Phosphorus ppm ASTM D5185m 1070 1259 1221 1149 Sulfur ppm ASTM D5185m 2060 3460 3325 2974 CONTAMINANTS method imit/base current history1 history2 Silicon ppm ASTM D5185m >30 5 13 8 Sodium ppm ASTM D5185m >20 1 2 9 INFRA-RED method limit/base <th>ADDITIVES</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	ADDITIVES		method	limit/base	current	history1	history2
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Magnesium ppm ASTM D5185m 1010 12 12 57 Calcium ppm ASTM D5185m 1070 2506 2310 2259 Phosphorus ppm ASTM D5185m 1150 1068 990 1007 Zinc ppm ASTM D5185m 1270 1259 1221 1149 Sulfur ppm ASTM D5185m 2060 3460 3325 2974 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 5 13 8 Sodium ppm ASTM D5185m >20 1 2 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.2 0.7 Nitration Abs/.mm *ASTM D7624 >20 8.6 6.3 9.7 Sulfation Abs/.lmm *ASTM D7615	Boron		ASTM D5185m	0	0	<1	<1
Calcium ppm ASTM D5185m 1070 2506 2310 2259 Phosphorus ppm ASTM D5185m 1150 1068 990 1007 Zinc ppm ASTM D5185m 1270 1259 1221 1149 Sulfur ppm ASTM D5185m 2060 3460 3325 2974 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 5 13 8 Sodium ppm ASTM D5185m >20 1 0 0 Potassium ppm ASTM D5185m >20 1 2 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.2 0.7 Nitration Abs/.mm *ASTM D7624 >20 8.6 6.3 9.7 Sulfation Abs/.imm *ASTM D7415 <th>Boron Barium</th> <th>ppm</th> <th>ASTM D5185m ASTM D5185m</th> <th>0</th> <th>0 0</th> <th><1 0</th> <th><1 <1</th>	Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	0 0	<1 0	<1 <1
Phosphorus ppm ASTM D5185m 1150 1068 990 1007 Zinc ppm ASTM D5185m 1270 1259 1221 1149 Sulfur ppm ASTM D5185m 2060 3460 3325 2974 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 5 13 8 Sodium ppm ASTM D5185m >30 5 13 8 Sodium ppm ASTM D5185m >30 5 13 8 Sodium ppm ASTM D5185m >20 1 2 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.2 0.7 Nitration Abs/rm *ASTM D7624 >20 8.6 6.3 9.7 19.0 FLUID DEGRADATION method	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 47	<1 0 46	<1 <1 53
Zinc ppm ASTM D5185m 1270 1259 1221 1149 Sulfur ppm ASTM D5185m 2060 3460 3325 2974 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >30 5 13 8 Sodium ppm ASTM D5185m >30 5 13 8 Sodium ppm ASTM D5185m >20 1 2 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 8.6 6.3 9.7 Sulfation Abs/1mm *ASTM D7415 >30 18.2 15.5 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 <th>Boron Barium Molybdenum Manganese</th> <th>ppm ppm ppm</th> <th>ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m</th> <th>0 0 60 0</th> <th>0 0 47 <1</th> <th><1 0 46 <1</th> <th><1 <1 53 1</th>	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 47 <1	<1 0 46 <1	<1 <1 53 1
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Sodium ppm ASTM D5185m 3 1 0 Potassium ppm ASTM D5185m >20 1 2 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 8.6 6.3 9.7 Sulfation Abs/.imm *ASTM D7415 >30 18.2 15.5 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.imm *ASTM D7414 >25 11.0 8.7 12.6	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	0 0 47 <1 12 2506 1068 1259	<1 0 46 <1 12 2310 990 1221	<1 <1 53 1 57 2259 1007 1149
Potassium ppm ASTM D5185m >20 1 2 9 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 8.6 6.3 9.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 15.5 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 11.0 8.7 12.6	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	0 0 47 <1 12 2506 1068 1259 3460	<1 0 46 <1 12 2310 990 1221 3325	<1 <1 53 1 57 2259 1007 1149 2974
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 8.6 6.3 9.7 Sulfation Abs/rm *ASTM D7415 >30 18.2 15.5 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 11.0 8.7 12.6	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	0 0 47 <1 12 2506 1068 1259 3460 current	<1 0 46 <1 12 2310 990 1221 3325 history1	<1 <1 53 1 57 2259 1007 1149 2974 history2
Soot % % *ASTM D7844 >3 0.4 0.2 0.7 Nitration Abs/cm *ASTM D7624 >20 8.6 6.3 9.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 15.5 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 11.0 8.7 12.6	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	0 0 47 <1 12 2506 1068 1259 3460 current 5	<1 0 46 <1 12 2310 990 1221 3325 history1 13	<1 <1 53 1 57 2259 1007 1149 2974 history2 8
Nitration Abs/cm *ASTM D7624 >20 8.6 6.3 9.7 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 15.5 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 11.0 8.7 12.6	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	0 0 47 <1 12 2506 1068 1259 3460 <u>current</u> 5 3	<1 0 46 <1 12 2310 990 1221 3325 history1 13 1	<1 <1 53 1 57 2259 1007 1149 2974 history2 8 0
Sulfation Abs/.1mm *ASTM D7415 >30 18.2 15.5 19.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 11.0 8.7 12.6	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >30	0 0 47 <1 12 2506 1068 1259 3460 <u>current</u> 5 3 1	<1 0 46 <1 12 2310 990 1221 3325 history1 13 1 2	<1 <1 53 1 57 2259 1007 1149 2974 history2 8 0 9
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 11.0 8.7 12.6	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >30 20	0 0 47 <1 12 2506 1068 1259 3460 current 5 3 1 2 5 3 1	<1 0 46 <1 12 2310 990 1221 3325 history1 13 1 2 history1 0.2	<1 <1 53 1 57 2259 1007 1149 2974 history2 8 0 9 history2 0.7
Oxidation Abs/.1mm *ASTM D7414 >25 11.0 8.7 12.6	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >30 20	0 0 47 <1 12 2506 1068 1259 3460 <i>current</i> 5 3 1 <i>current</i> 0.4	<1 0 46 <1 12 2310 990 1221 3325 history1 13 1 2 history1 0.2	<1 <1 53 1 57 2259 1007 1149 2974 history2 8 0 9 history2 0.7
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >30 >20 imit/base >3 >20	0 0 47 <1 12 2506 1068 1259 3460 <u>current</u> 5 3 1 5 3 1 0.4 8.6	<1 0 46 <1 12 2310 990 1221 3325 history1 13 1 2 history1 0.2 6.3	<1 <1 53 1 57 2259 1007 1149 2974 history2 8 0 9 history2 0.7 9.7
Base Number (BN) mg KOH/g ASTM D2896 9.8 7.4 7.7 5.3	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >30 20 imit/base >3 >20 >3	0 0 47 <1 12 2506 1068 1259 3460 <u>current</u> 5 3 1 <u>current</u> 0.4 8.6 18.2	<1 0 46 <1 12 2310 990 1221 3325 history1 13 1 2 history1 0.2 6.3 15.5	<1 <1 53 1 57 2259 1007 1149 2974 bistory2 8 0 9 bistory2 0.7 9.7 19.0
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 2060 2060 2060 200 200 200 200 200 200	0 0 47 <1 12 2506 1068 1259 3460 <i>current</i> 5 3 3 1 <i>current</i> 0.4 8.6 18.2 <i>current</i>	<1 0 46 <1 12 2310 990 1221 3325 history1 13 1 2 history1 0.2 6.3 15.5 history1	<1 <1 53 1 57 2259 1007 1149 2974 history2 8 0 9 history2 0.7 9.7 19.0 history2

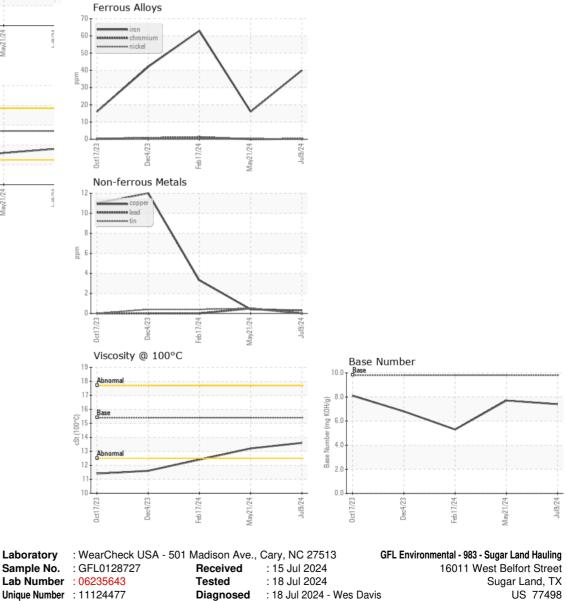


OIL ANALYSIS REPORT





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	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	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.6	13.2	12.4
GRAPHS						





 Certificate 12367
 Test Package
 : FLEET
 CC

 To discuss this sample report, contact Customer Service at 1-800-237-1369.
 adria

 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.
 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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