

## **OIL ANALYSIS REPORT**

### BUILDING 63 - CENTRAL DRAIN & FILL BARREL VAN 15 (S/N BULBUL) Component

**Bulk Fluid Tank** 

### AW HYDRAULIC OIL ISO 32 (--- GAL)

#### DIAGNOSIS

#### Recommendation

We recommend you service the filters on this component. We recommend an early resample to monitor this condition. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) AW HYDRAULIC OIL ISO 32. Please confirm.

#### Wear

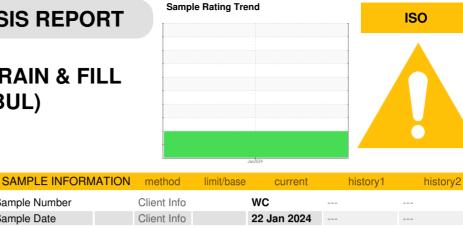
All component wear rates are normal.

#### Contamination

There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

#### Fluid Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

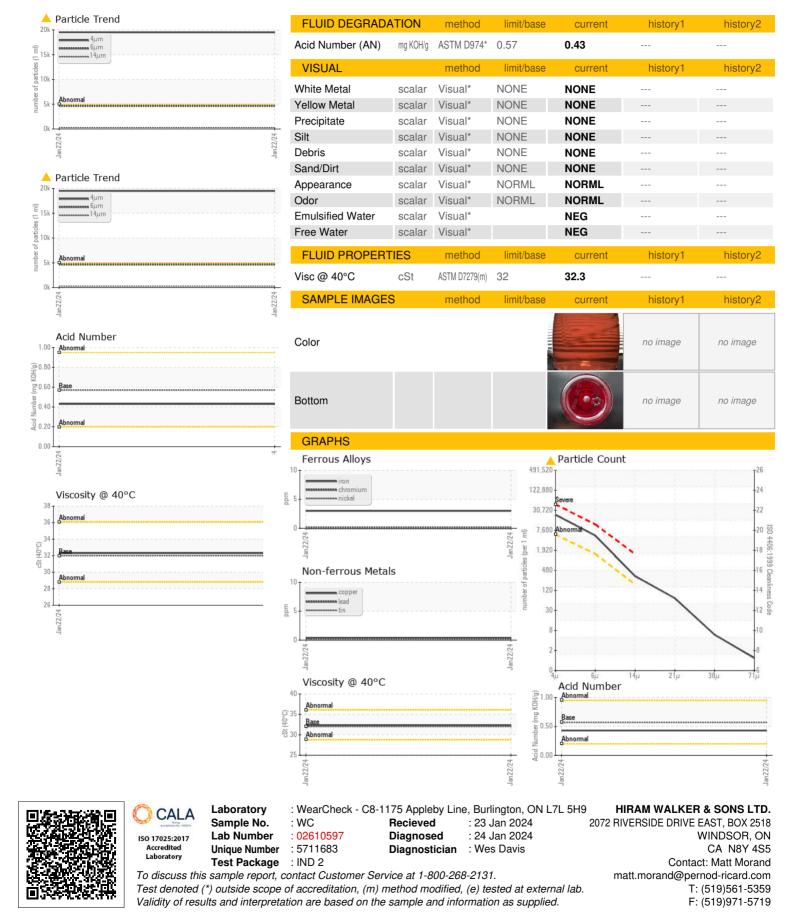


Sample NumberClient InfoWCSample DateIClient Info0IMachine AgehrsClient Info0IOil AgehrsClient InfoN/AISample StatusIClient InfoN/AIICONTAMINATIONmethodImitbasecurrenthistory1history2WaterWC MethodNEGIIVertamMethodImitbasecurrenthistory1IIronppmASTM 0518/n10IINickelppmASTM 0518/nIIIISilverppmASTM 0518/nIIIIISilverppmASTM 0518/nIIIIIICopperppmASTM 0518/nIIIIIIIVanadiumpmASTM 0518/nII	SAMPLE INFORM		method	IIIII/Dase	current	Thistory I	Thistory2
Machine Age Oil Age Oil Age Oil ChangedClient Info0Oil ChangedClient InfoN/ASample StatusIImelbosRENORMALImitory	Sample Number		Client Info		WC		
Oil Age     hrs     Client Info     N/A         Oil Changed     Client Info     N/A         Sample Status     Imit/base     current     history1     history2       CONTAMINATION     Wethed     Imit/base     current     history1     history2       Water     WC Method     Imit/base     current     history1     history2       WEAR METALS     method     Imit/base     current     history1     history2       Iron     ppm     ASTM 05160m     3         Nickel     ppm     ASTM 05160m     -<1	Sample Date		Client Info		22 Jan 2024		
Oli Changed     Client Info     N/A         Sample Status     Image of the status     Tend of the status     Image of the status     Image of the status       CONTAMINATION     method     limit/base     current     history1     history2       Ware     WC Method     NEG         WEAR METALS     method     limit/base     current     history1        WEAR METALS     method     limit/base     current     history1        WEAR METALS     method     limit/base     current     history1        Nickel     ppm     ASTM D5185(m      0        Nickel     ppm     ASTM D5185(m      0        Juminum     ppm     ASTM D5185(m      0        Aluminum     ppm     ASTM D5185(m      0        Antimony     ppm     ASTM D5185(m     0         Antimony     ppm     ASTM D5185(m     0         AstM D5185(m     1     0         AstM D5185(m     2     1         Barom     ppm     ASTM D5185(m </td <td>Machine Age</td> <td>hrs</td> <td>Client Info</td> <td></td> <th>0</th> <td></td> <td></td>	Machine Age	hrs	Client Info		0		
Sample Status         method         Imit/base         current         history1         history2           Water         WC Method         NEG             WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185(m)         3             Chromium         ppm         ASTM D5185(m)         0             Nickel         ppm         ASTM D5185(m)         0             Aluminum         ppm         ASTM D5185(m)         0             Antimony         ppm         ASTM D5185(m)         0 <t< td=""><td>Oil Age</td><td>hrs</td><td>Client Info</td><td></td><th>0</th><td></td><td></td></t<>	Oil Age	hrs	Client Info		0		
Sample Status         method         imit/base         current         history1         history2           Water         WC Method         imit/base         current         history1         history2           WEAR METALS         method         imit/base         current         history1         history2           Iron         ppm         ASTM D5155(m)         3             Nickel         ppm         ASTM D5155(m)         <0	Oil Changed		Client Info		N/A		
Water         WC Method         NEG             WEAR METALS         method         limil/base         current         history1         history2           Iron         ppm         ASTM D5185(m)         3             Nickel         ppm         ASTM D5185(m)         0             Nickel         ppm         ASTM D5185(m)         0             Aluminum         ppm         ASTM D5185(m)         0             Aluminum         ppm         ASTM D5185(m)         0             Lead         ppm         ASTM D5185(m)         0             Antimony         ppm         ASTM D5185(m)         0	Sample Status				ABNORMAL		
Water         WC Method         NEG             WEAR METALS         method         limil/base         current         history1         history2           Iron         ppm         ASTM D5185(m)         3             Nickel         ppm         ASTM D5185(m)         <1             Nickel         ppm         ASTM D5185(m)         <1             Aluminum         ppm         ASTM D5185(m)         <1             Aduminum         ppm         ASTM D5185(m)         <1             Lead         ppm         ASTM D5185(m)         <1             Aduminum         ppm         ASTM D5185(m)         0             Antimony         ppm         ASTM D5185(m)         0             Adtimum         ppm         ASTM D5185(m)         5         <1            Adtimum         ppm         ASTM D5185(m)         5         <1			un ette e el	line it /le e e e		Internet	la i ata m i O
WEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM DS185(m)3NickelppmASTM DS185(m)<1NickelppmASTM DS185(m)0SilverppmASTM DS185(m)0AluminumppmASTM DS185(m)0AluminumppmASTM DS185(m)<1LeadppmASTM DS185(m)<1CopperppmASTM DS185(m)0TinppmASTM DS185(m)0AntimonyppmASTM DS185(m)0AntimonyppmASTM DS185(m)0BerylliumppmASTM DS185(m)5<1ADDITIVESmethodlimi/basecurrenthistory1history2BoronppmASTM DS185(m)5<1AnganeseppmASTM DS185(m)2061MagnesiumppmASTM DS185(m)25<1ContakinyppmASTM DS185(m)200610SulfurppmASTM DS185(m)200610SulfurppmASTM DS185(m)200610	CONTAMINATIO	N		limit/base	current	nistory i	nistory2
Iron         ppm         ASTM D5185(m)         3            Nickel         ppm         ASTM D5185(m)         <1            Nickel         ppm         ASTM D5185(m)         <0            Silver         ppm         ASTM D5185(m)         0            Aluminum         ppm         ASTM D5185(m)         <1            Lead         ppm         ASTM D5185(m)         <1            Copper         ppm         ASTM D5185(m)         <1            Antimony         ppm         ASTM D5185(m)         0            Vanadium         ppm         ASTM D5185(m)         0            Vanadium         ppm         ASTM D5185(m)         0            Vanadium         ppm         ASTM D5185(m)         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         5         <1             Magnaese         ppm         ASTM D5185(m)         200         61	Water		WC Method		NEG		
Chromium         ppm         ASTM D5185(m)         0             Nickel         ppm         ASTM D5185(m)         <1             Silver         ppm         ASTM D5185(m)         0             Silver         ppm         ASTM D5185(m)         0             Lead         ppm         ASTM D5185(m)         <1             Lead         ppm         ASTM D5185(m)         <1             Attimony         ppm         ASTM D5185(m)         0             Vanadium         ppm         ASTM D5185(m)         0             Attimony         ppm         ASTM D5185(m)         0             Attimony         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         5         <1             ADDITIVES         method         limit/base         current         history1         history2           Barium         ppm         ASTM D5185(m)         5         <1 <th>WEAR METALS</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	WEAR METALS		method	limit/base	current	history1	history2
Chromium         ppm         ASTM D5185(m)         0             Nickel         ppm         ASTM D5185(m)         <1	Iron	ppm	ASTM D5185(m)		3		
Nickel         ppm         ASTM D5185(m)         <1             Titanium         ppm         ASTM D5185(m)         0             Silver         ppm         ASTM D5185(m)         0             Aluminum         ppm         ASTM D5185(m)         <1	Chromium		ASTM D5185(m)		0		
Titanium       ppm       ASTM D5185(m)       0           Silver       ppm       ASTM D5185(m)       0           Aluminum       ppm       ASTM D5185(m)       <1	Nickel				<1		
SilverppmASTM D5185(m)0AluminumppmASTM D5185(m)<<1	Titanium				0		
Aluminum         ppm         ASTM D5185(m)         <1             Lead         ppm         ASTM D5185(m)         <1	Silver				0		
Lead         ppm         ASTM D5185(m)         <1							
Copper         prm         ASTM D5185(m)         <1             Tin         ppm         ASTM D5185(m)         0             Antimony         ppm         ASTM D5185(m)         0             Vanadium         ppm         ASTM D5185(m)         0             Beryllium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         5         <1							
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Antimony         ppm         ASTM D5185(m)         0             Vanadium         ppm         ASTM D5185(m)         0             Beryllium         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         5         <1							
Vanadium         ppm         ASTM D5185(m)         0             Beryllium         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         5         <1							
Beryllium         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         5         <1             Barium         ppm         ASTM D5185(m)         5         <1             Molybdenum         ppm         ASTM D5185(m)         5         <1             Magnese         ppm         ASTM D5185(m)         5         <1             Magnesium         ppm         ASTM D5185(m)         200         61             Magnesium         ppm         ASTM D5185(m)         200         61             Sulfur         ppm         ASTM D5185(m)         2500         808             Sulfur         ppm         ASTM D5185(m)         200         <1             Sodium         ppm         ASTM D5185(m)         20         <1	•						
Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         5         <1             Barium         ppm         ASTM D5185(m)         5         <1             Molybdenum         ppm         ASTM D5185(m)         5         <1             Magnese         ppm         ASTM D5185(m)         5         <1             Magnesium         ppm         ASTM D5185(m)         25         <1             Calcium         ppm         ASTM D5185(m)         200         61             Magnesium         ppm         ASTM D5185(m)         200         808             Sulfur         ppm         ASTM D5185(m)         200         808             Solfur         ppm         ASTM D5185(m)         >20         <1             Solfur         ppm         ASTM D5185(m)         >20							
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         5         <1	-						
Boron         ppm         ASTM D5185(m)         5         <1		PP	( )				
Barium         ppm         ASTM D5185(m)         5         0             Molybdenum         ppm         ASTM D5185(m)         5         <1             Manganese         ppm         ASTM D5185(m)         25         <1             Magnesium         ppm         ASTM D5185(m)         25         <1             Calcium         ppm         ASTM D5185(m)         200         61             Phosphorus         ppm         ASTM D5185(m)         300         339             Sulfur         ppm         ASTM D5185(m)         2500         808             Sulfur         ppm         ASTM D5185(m)         2500         808             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >20         <1             Potassium         ppm         ASTM D5185(m)         >20         <1             Particles >4µm	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185(m)         5         <1            Manganese         ppm         ASTM D5185(m)         0             Magnesium         ppm         ASTM D5185(m)         25         <1	Boron	ppm	ASTM D5185(m)	5	<1		
Maganese         ppm         ASTM D5185(m)         0             Magnesium         ppm         ASTM D5185(m)         25         <1	Barium	ppm	ASTM D5185(m)	5	0		
Magnesium         ppm         ASTM D5185(m)         25         <1             Calcium         ppm         ASTM D5185(m)         200         61             Phosphorus         ppm         ASTM D5185(m)         300         339             Zinc         ppm         ASTM D5185(m)         370         411             Sulfur         ppm         ASTM D5185(m)         2500         808             Sulfur         ppm         ASTM D5185(m)         2500         808             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         <1	Molybdenum	ppm	ASTM D5185(m)	5	<1		
Calcium       ppm       ASTM D5185(m)       200       61           Phosphorus       ppm       ASTM D5185(m)       300       339           Zinc       ppm       ASTM D5185(m)       370       411           Sulfur       ppm       ASTM D5185(m)       2500       808           Lithium       ppm       ASTM D5185(m)       2500       808           CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185(m)       <1	Manganese	ppm	ASTM D5185(m)		0		
Phosphorus         ppm         ASTM D5185(m)         300         339             Zinc         ppm         ASTM D5185(m)         370         411             Sulfur         ppm         ASTM D5185(m)         2500         808             Lithium         ppm         ASTM D5185(m)         2500         808             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         <1	Magnesium	ppm	ASTM D5185(m)	25	<1		
Zinc         ppm         ASTM D5185(m)         370         411             Sulfur         ppm         ASTM D5185(m)         2500         808             Lithium         ppm         ASTM D5185(m)         2500         808             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         <1	Calcium	ppm	ASTM D5185(m)	000			
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LithiumppmASTM D5185(m)<1CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185(m)<1		ppm			-		
LithiumppmASTM D5185(m)<1CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185(m)<1	Zinc		ASTM D5185(m)	300	339		
Silicon         ppm         ASTM D5185(m)         <1             Sodium         ppm         ASTM D5185(m)         0             Potassium         ppm         ASTM D5185(m)         >20         <1		ppm	ASTM D5185(m) ASTM D5185(m)	300 370	339 411		
Silicon         ppm         ASTM D5185(m)         <1	Sulfur	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	300 370	339 411 808		
Sodium         ppm         ASTM D5185(m)         0             Potassium         ppm         ASTM D5185(m)         >20         <1	Sulfur Lithium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	300 370 2500	339 411 808 <1		
Potassium         ppm         ASTM D5185(m)         >20         <1             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         19500             Particles >6µm         ASTM D7647         >1300         4653             Particles >14µm         ASTM D7647         >160         284             Particles >21µm         ASTM D7647         >40         62             Particles >38µm         ASTM D7647         >10         5             Particles >71µm         ASTM D7647         >3         1	Sulfur Lithium CONTAMINANTS	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) method	300 370 2500	339 411 808 <1 current	   history1	   history2
FLUID CLEANLINESS       method       limit/base       current       history1       history2         Particles >4µm       ASTM D7647       >5000       ▲ 19500           Particles >6µm       ASTM D7647       >1300       ▲ 4653           Particles >14µm       ASTM D7647       >160       ▲ 284           Particles >21µm       ASTM D7647       >40       ▲ 62           Particles >38µm       ASTM D7647       >10       5           Particles >71µm       ASTM D7647       >3       1	Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) <b>method</b> ASTM D5185(m)	300 370 2500	339 411 808 <1 current <1	   history1	   history2
Particles >4μm       ASTM D7647       >5000       19500           Particles >6μm       ASTM D7647       >1300       4653           Particles >6μm       ASTM D7647       >160       284           Particles >14μm       ASTM D7647       >40       62           Particles >21μm       ASTM D7647       >10       5           Particles >38μm       ASTM D7647       >3       1	Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) Method ASTM D5185(m) ASTM D5185(m)	300 370 2500 limit/base	339 411 808 <1 <u>current</u> <1 0	  history1 	   history2 
Particles >6µm       ASTM D7647       >1300       ▲ 4653           Particles >14µm       ASTM D7647       >160       ▲ 284           Particles >21µm       ASTM D7647       >40       ▲ 62           Particles >38µm       ASTM D7647       >10       5           Particles >71µm       ASTM D7647       >3       1	Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	300 370 2500 limit/base	339 411 808 <1 current <1 0 <1	  history1  	  history2 
Particles >14μm         ASTM D7647         >160         ▲ 284             Particles >21μm         ASTM D7647         >40         ▲ 62             Particles >38μm         ASTM D7647         >10         5             Particles >71μm         ASTM D7647         >3         1	Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) Method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	300 370 2500 limit/base >20 limit/base	339 411 808 <1 current <1 0 <1 current	  history1   history1	  history2   history2
Particles >21μm         ASTM D7647         >40         ▲ 62             Particles >38μm         ASTM D7647         >10         5             Particles >71μm         ASTM D7647         >3         1	Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	300 370 2500 limit/base >20 limit/base >5000	339 411 808 <1 current <1 0 <1 current € 19500	  history1   history1	  history2   history2
Particles >38μm         ASTM D7647         >10         5             Particles >71μm         ASTM D7647         >3         1	Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7647 ASTM D7647	300 370 2500 limit/base >20 limit/base >5000 >1300	339 411 808 <1 current <1 0 <1 0 <1 2 19500 ▲ 19500	  history1   history1	  history2   history2  history2
Particles >71μm         ASTM D7647         >3         1	Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647	300 370 2500 limit/base >20 limit/base >5000 >1300 >160	339 411 808 <1 current <1 0 <1 current 19500 ▲ 19500 ▲ 4653 ▲ 284	  history1   history1  history1	  history2   history2  history2
	Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	300 370 2500 limit/base >20 limit/base >5000 >1300 >160 >40	339 411 808 <1 current <1 0 <1 current 19500 ▲ 4653 ▲ 284 ▲ 62	  history1   history1  history1	  history2  history2  history2
Oil Cleanliness ISO 4406 (c) >19/17/14 ▲ 21/19/15	Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm Particles >21µm Particles >38µm	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	300 370 2500 limit/base >20 limit/base >5000 >1300 >160 >40 >10	339 411 808 <1 current <1 0 <1 current ▲ 19500 ▲ 4653 ▲ 284 ▲ 62 5	  history1   history1   	 history2    history2  history2
	Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm Particles >21µm Particles >38µm Particles >71µm	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	300 370 2500 limit/base >20 limit/base >5000 >1300 >160 >40 >10 >3	339 411 808 <1 <urrent &lt;1 0 &lt;1 <urrent <urrent 19500 ▲ 19500 ▲ 19500 ▲ 284 <ul><li>284</li><li>62</li><li>5</li><li>1</li></ul></urrent </urrent </urrent 	  history1   history1   	 history2    history2  history2

Contact/Location: Matt Morand - HIRWIN



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