

OIL ANALYSIS REPORT

Sample Rating Trend





Hydraulic System Fluid ESSO NUTO H ISO 68 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Wear

All component wear rates are normal.

Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

				Jul2019			
SAMPLE INFORM	ATION	method	limit/base	current	history1	history2	
Sample Number		Client Info		WC0306733			
Sample Date		Client Info		25 Jul 2019			
Machine Age	hrs	Client Info		51723			
Oil Age	hrs	Client Info		0			
Oil Changed		Client Info		Not Changd			
Sample Status				NORMAL			
CONTAMINATION		method	limit/base	current	history1	history2	
Water		WC Method	>0.05	NEG			
WEAR METALS		method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185(m)	>20	<1			
Chromium	ppm	ASTM D5185(m)	>20	0			
Nickel	ppm	ASTM D5185(m)	>20	<1			
Titanium	ppm	ASTM D5185(m)		0			
Silver	ppm	ASTM D5185(m)		0			
Aluminum	ppm	ASTM D5185(m)	>20	0			
Lead	ppm	ASTM D5185(m)	>20	<1			
Copper	ppm	ASTM D5185(m)	>20	4			
Tin	ppm	ASTM D5185(m)	>20	0			
Antimony	ppm	ASTM D5185(m)		0			
Vanadium	ppm	ASTM D5185(m)		0			
Beryllium	ppm	ASTM D5185(m)		0			
Cadmium	ppm	ASTM D5185(m)		<1			
ADDITIVES		method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185(m)	0	<1			
	ppm ppm	ASTM D5185(m) ASTM D5185(m)		<1 0			
Barium							
Barium Molybdenum	ppm	ASTM D5185(m)	0	0			
Barium Molybdenum Manganese	ppm ppm	ASTM D5185(m) ASTM D5185(m)	0	0 0			
Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0	0 0 <1			
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 5	0 0 <1 <1	 		
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 5 50	0 0 <1 <1 37		 	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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)	0 0 5 50 330	0 0 <1 <1 37 342	 	 	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm 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)	0 0 5 50 330 420	0 0 <1 <1 37 342 364	 	 	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm 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)	0 0 5 50 330 420	0 0 <1 <1 37 342 364 2608	 	 	
Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm 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)	0 0 5 50 330 420 3100	0 0 <1 <1 37 342 364 2608 0			
Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm 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)	0 0 5 50 330 420 3100	0 0 <1 <1 37 342 364 2608 0 current	 history1	 history2	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	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 D5185(m)	0 0 5 50 330 420 3100	0 0 <1 <1 37 342 364 2608 0 <u>current</u> <1	 history1 	 history2	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	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 D5185(m)	0 0 5 50 330 420 3100 imit/base >15	0 0 <1 <1 37 342 364 2608 0 current <1 <1	 history1	 history2	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm	ASTM D5185(m) ASTM D5185(m)	0 0 5 50 330 420 3100 limit/base >15 >20	0 0 <1 <1 37 342 364 2608 0 <u>current</u> <1 <1 <1 0	 history1	 history2	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLINE	ppm	ASTM D5185(m) ASTM D5185(m)	0 0 5 50 330 420 3100 imit/base >15 >20 imit/base >5000	0 0 <1 <1 37 342 364 2608 0 current <1 <1 <1 0 current	 history1 history1	history2 history2	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLINE Particles >4µm	ppm	ASTM D5185(m) ASTM D5185(m)	0 0 5 50 330 420 3100 imit/base >15 >20 imit/base >5000	0 0 <1 <1 37 342 364 2608 0 current <1 <1 <1 0 current 2743	 history1 history1 history1	 history2 history2 	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLINE Particles >4µm Particles >6µm	ppm	ASTM D5185(m) ASTM D5185(m)	0 0 5 50 330 420 3100 3100 binit/base >15 >20 binit/base >20 binit/base >1300 >1300 >160	0 0 <1 <1 37 342 364 2608 0 <u>current</u> <1 <1 <1 0 <u>current</u> 2743 333	 history1 history1 	 history2 history2 history2 	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Potassium FLUID CLEANLINE Particles >4µm Particles >14µm	ppm	ASTM D5185(m) ASTM D7647 ASTM D7647	0 0 5 50 330 420 3100 3100 binit/base >15 >20 binit/base >20 binit/base >1300 >1300 >160	0 0 <1 <1 37 342 364 2608 0 <u>current</u> <1 <1 <1 0 <u>current</u> 2743 333 9	 history1 history1 history1	 history2 history2 	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLINE Particles >4µm Particles >14µm Particles >21µm	ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	0 0 5 50 330 420 3100 3100 >1 5 20 5 20 5 20 5 5000 >1300 >160 >160 >40 >10	0 0 <1 <1 37 342 364 2608 0 <u>current</u> <1 <1 <1 0 <u>current</u> 2743 333 9 2	 history1 history1 history1	history2 history2	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Patticles >4µm Particles >6µm Particles >14µm Particles >21µm Particles >38µm	ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	0 0 5 50 330 420 3100 3100 >1 5 20 5 20 5 20 5 5000 >1300 >160 >160 >40 >10	0 0 <1 <1 37 342 364 2608 0 <u>current</u> <1 <1 <1 0 <u>current</u> 2743 333 9 2 0	 history1 history1 history1	history2 <p< td=""></p<>	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLINE Particles >4µm Particles >6µm Particles >21µm Particles >38µm Particles >71µm	ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	0 0 5 5 5 330 420 3100 3100 3100 3100 3100 315 5 5000 21300 2160 240 310 310 2160 23	0 0 <1 <1 37 342 364 2608 0 <u>current</u> <1 <1 <1 0 <u>current</u> 2743 333 9 2 2 0 0 0 19/16/10	 history1 history1 history1	i <p< td=""></p<>	



OIL ANALYSIS REPORT

6k -	Particle Trend	FLUID DEGRADA	ATION	method				history2
5k •	4μm	Acid Number (AN)	mg KOH/g	ASTM D974*	.40	0.190		
- 1) salitical and selected and	14μm	VISUAL		method	limit/base	current	history1	history2
5		White Metal	scalar	Visual*	NONE	NONE		
ag 2k - gunu 1k -		Yellow Metal	scalar	Visual*	NONE	NONE		
Ok		Precipitate	scalar	Visual*	NONE	NONE		
	6 // 52 inr	Silt		Visual*	NONE	NONE		
-		Debris Sand/Dirt	scalar scalar	Visual* Visual*	NONE	VLITE NONE		
0.50 T	Acid Number	Appearance	scalar	Visual*	NORML	NORML		
	Base	Odor	scalar	Visual*	NORML	NORML		
(B/HO) B 0 30		Emulsified Water	scalar	Visual*	>0.05	NEG		
0.30 Jagunger Munder		Free Water	scalar	Visual*		NEG		
Acid Nun Acid Nun Acid Nun		FLUID PROPERT	IES	method	limit/base	current	history1	history2
0.00		Visc @ 40°C	cSt	ASTM D7279(m)	68.8	67.7		
101.00	91/25/Ju 61/25/Ju	SAMPLE IMAGES	5	method	limit/base	current	history1	history2
1 ⁰⁸	Viscosity @ 40°C	Color					no image	no image
(), 70 	Base	Bottom					no image	no image
55		GRAPHS						
1011	6	Ferrous Alloys			491,520	Particle Count		т26
		iron			122,880			-24
6k T	Particle Trend	E. 5			30,720	Severe		-22
≘ ^{5k} •	μοποπηα 4 μm Gum	0			7.000	Abnormal		
1 l) 4k -	14μm	Jul25/19			(per 1 m]) 1025/19			18 06
10			_		Jul25/19 1026/19 1026/19 1026/19			1999
Jag 2k -		Non-ferrous Metal	S		40		•	-20 130 4406:1999 Claanliness -16 6406:1999 Claanliness -16 14 114
Ok		copper lead			una 120			
01.40	0 LL/22/13	ā. 5 -			30	ļ \	1	-12 🤤
-						†		+10
		Jul25/1			Jul25/19	-		-8
		Viscosity @ 40°C			, 0 4	ہوں۔ Acid Number	14µ 21µ	38μ 71μ
		80 75 Abnormal			0.60 (D)			
		()-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0			e ^o 0.40	Base		
		表 65 60 Abnomal			4 0.20			
		55						
		Jul25/19			Jul25/19 -	Jul25/19		Jul25/19
	Laboratory Sample No. Lab Number Accredited Laboratory Test Package To discuss this sample report Test denoted (*) outside scop	: WearCheck - C8-117 : WC0306733 : 02300142 : 4903415 : IND 2 t, contact Customer Serv	Recei Teste Diagr	ved : 31 d : 01 iosed : 01 ::00-268-213 ::	gton, ON L7L Jul 2019 Aug 2019 Aug 2019 - W	es Davis	PETERB Contac	

Contact/Location: Nelson Ross - PET412PET