

OIL ANALYSIS REPORT

Sample Rating Trend





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

Wear

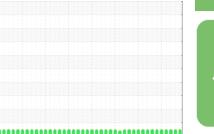
All component wear rates are normal.

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.



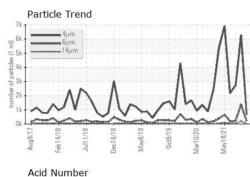


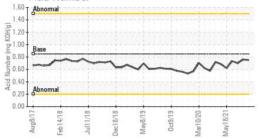
a2017 Feb2018 Juc2018 Dec2018 Max2019 Oct2019 Max2020 Max2021

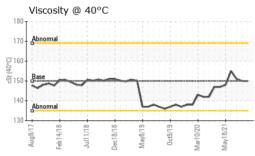
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PTK0000387	PTK0000350	PTK0001281
Sample Date		Client Info		09 Nov 2023	13 Jun 2023	23 Nov 2022
Machine Age	mths	Client Info		0	0	0
Oil Age	mths	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATIO	N	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	0	4	5
Chromium	ppm	ASTM D5185m	>10	0	0	0
Nickel	ppm	ASTM D5185m	>10	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>25	0	0	<1
Lead	ppm	ASTM D5185m	>50	0	<1	<1
Copper	ppm	ASTM D5185m	>200	<1	1	2
Tin	ppm	ASTM D5185m	>10	0	0	<1
Antimony	ppm	ASTM D5185m	>5			
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 50	current 27	history1 2	history2 0
	ppm ppm					
Boron		ASTM D5185m	50	27	2	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 15	27 0	2 2	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 15	27 0 0	2 2 0	0 0 0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 15 15	27 0 0 0	2 2 0 0	0 0 0 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 15 15 50	27 0 0 0 0	2 2 0 0 <1	0 0 0 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 15 15 50 50	27 0 0 0 0 <1	2 2 0 0 <1 3	0 0 0 <1 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 15 15 50 50 350	27 0 0 0 0 <1 313	2 2 0 0 <1 3 305	0 0 0 <1 2 320
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 15 15 50 50 350 100	27 0 0 0 0 <1 313 7	2 2 0 <1 3 305 7	0 0 0 <1 2 320 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 15 15 50 50 350 100 12500	27 0 0 0 0 <1 313 7 14267	2 2 0 <1 3 305 7 15969	0 0 0 <1 2 320 3 15510
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 15 15 50 50 350 100 12500	27 0 0 0 <1 313 7 14267 current	2 2 0 0 <1 3 305 7 15969 history1	0 0 0 <1 2 320 3 15510 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	50 15 15 50 50 350 100 12500 limit/base >50	27 0 0 0 <1 313 7 14267 current 0	2 2 0 0 <1 3 305 7 15969 history1 0	0 0 0 <1 2 320 3 15510 history2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	50 15 15 50 50 350 100 12500 limit/base >50	27 0 0 0 0 <1 313 7 14267 <i>current</i> 0 1	2 2 0 0 <1 3 305 7 15969 history1 0 0	0 0 0 <1 2 320 3 15510 history2 2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 15 15 50 50 350 100 12500 limit/base >50 >20	27 0 0 0 0 (1 313 7 14267 <i>current</i> 0 1 0 0 1 0 <i>current</i> 668	2 2 0 0 <1 3 305 7 15969 history1 0 0 2	0 0 0 <1 2 320 3 15510 history2 2 2 2 2 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 15 15 50 350 100 12500 limit/base >50 >20 limit/base	27 0 0 0 3 1 313 7 14267 current 0 1 0 0 1 0 0	2 2 0 0 1 3 305 7 15969 history1 0 0 2 history1	0 0 0 <1 2 320 3 15510 history2 2 2 2 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 15 15 50 350 100 12500 limit/base >50 >20 limit/base	27 0 0 0 0 (1 313 7 14267 <i>current</i> 0 1 0 0 1 0 <i>current</i> 668	2 2 0 0 (1 3 305 7 15969 history1 0 0 2 history1 6271	0 0 0 2 320 3 15510 history2 2 2 2 2 1 history2 2 2730
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 15 15 50 50 350 100 12500 12500 100 12500 100 12500 100 12500 100 12500 100 100 100 100 100 100 100 100 100	27 0 0 0 0 <1 313 7 14267 <i>current</i> 0 1 0 0 <i>current</i> 668 200	2 2 0 0 1 3 305 7 15969 history1 0 0 2 <u>history1</u> 6271 1380	0 0 0 2 320 3 15510 history2 2 2 2 2 1 history2 2 2 2 3 15510 2 1 7 3 15510
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 15 15 50 50 350 100 12500 12500 100 12500 100 12500 100 12500 100 12500 100 100 100 100 100 100 100 100 100	27 0 0 0 0 3 1 313 7 14267 0 14267 0 1 0 1 0 0 1 0 0 1 0 0 0 1 0 0 0 1 0 0 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1	2 2 0 0 (1 3 305 7 15969 history1 0 0 0 2 history1 6271 1380 208	0 0 0 10 2 320 3 15510 history2 2 2 2 2 2 1 5 1 5 1 0 1 5 5 10 1 1 5 5 10 1 1 5 5 10 1 1 5 5 10 1 1 5 5 10 1 1 1 5 5 10 1 1 1 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	50 15 15 50 50 350 100 12500 limit/base >50 limit/base >20 limit/base >20	27 0 0 0 0 3 1 3 13 7 14267 0 14267 0 1 14267 0 1 0 0 0 1 0 0 0 0 1 0 0 0 0 1 1 0 0 1 0 0 1 1 0 0 1 1 0 0 1	2 2 0 0 <1 3 305 7 15969 history1 0 0 2 history1 6271 1380 208 66	0 0 0 2 3 320 3 15510 history2 2 2 2 2 2 2 3 15510 2 15510 2 15510 2 15510 2 15510 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2



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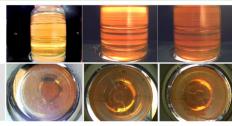


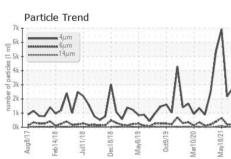


FLUID DEGRADATION		method				history2	
Acid N	umber (AN)	mg KOH/g	ASTM D8045	0.85	0.75	0.76	0.70
VISU	IAL		method	limit/base	current	history1	history2
White I	Vetal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow	Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipi	tate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt		scalar	*Visual	NONE	NONE	NONE	NONE
Debris		scalar	*Visual	NONE	NONE	LIGHT	NONE
Sand/E	Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appear	rance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor		scalar	*Visual	NORML	NORML	NORML	NORML
Emulsi	fied Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free W	/ater	scalar	*Visual		NEG	NEG	NEG
FLUI	D PROPERT	IES	method	limit/base	current	history1	history2
Visc @	40°C	cSt	ASTM D445	150	150	150	151
SAMPLE IMAGES		method	limit/base	current	history1	history2	
				_			

Color

Bottom





Ferrous Alloys Particle Count 491,520 122,880 30,720 7.680 lec18/1 per eb 1,920 480 Non-ferrous Metals 120 30 /av18/21 Dec18/1 Mav8/1 0ct9/1 11m feb 1 Viscosity @ 40°C (B/H0) 2.00 Acid Number 180 Abnormal Ab ber (mg 1 1.00 Ba Abr na 120 Acid N 0.00 Aug8/17. Jul11/18 Jul11/18 May18/21 May18/21 Feb14/18 Aav8/19 Mar10/20 Mar10/20 Dec18/18 Dec18/18 May8/19 0ct9/19 Feb 1.

GRAPHIC PACKAGING Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : PTK0000387 Received : 24 Nov 2023 1500 NICHOLAS BLVD Lab Number Diagnosed : 28 Nov 2023 ELK GROVE, IL :06017329 Unique Number : 10756473 : Wes Davis US 60017 Diagnostician Test Package : MOB 2 (Additional Tests: PrtCount) Contact: TONY HILDY Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. anthonyhildy@graphicpkg.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (847)437-1700 F:

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Contact/Location: TONY HILDY - GRAELK

ISO 4406:1999 Clea -20

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