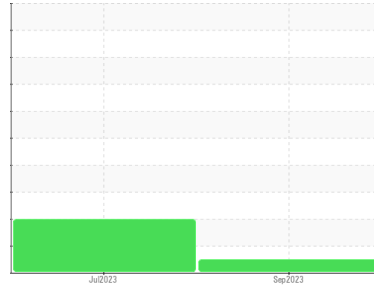




# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Area  
**PAPER MACHINE**  
 Machine Id  
**701.0140 Refiner #5**

Component  
**Gearbox**  
 Fluid  
**SHELL MORLINA S4 B 220 (--- GAL)**

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### Contamination

The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil.

### Fluid Condition

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

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			<b>PE0001412</b>	PE0000932	---
Sample Date	Client Info			<b>20 Sep 2023</b>	13 Jul 2023	---
Machine Age	hrs	Client Info		<b>0</b>	0	---
Oil Age	hrs	Client Info		<b>0</b>	0	---
Oil Changed	Client Info			<b>N/A</b>	N/A	---
Sample Status				<b>NORMAL</b>	ABNORMAL	---

CONTAMINATION		method	limit/base	current	history1	history2
Water	WC Method		>0.2	<b>NEG</b>	NEG	---

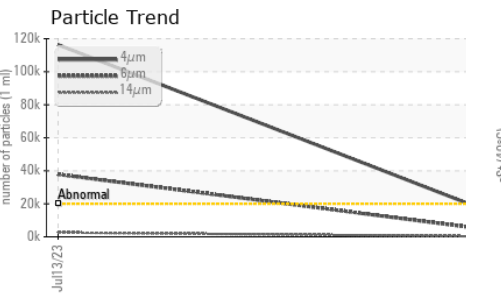
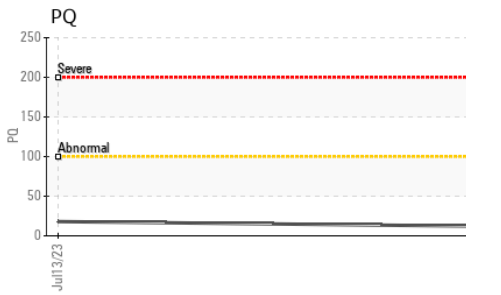
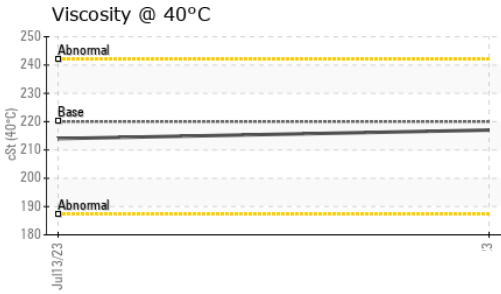
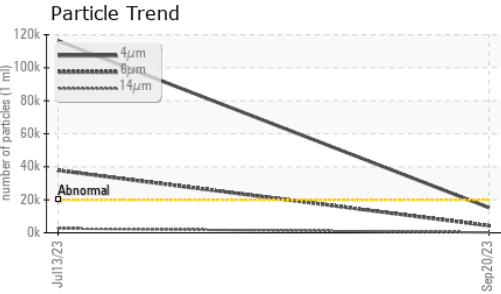
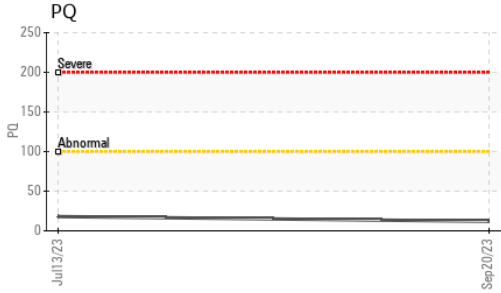
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184		<b>12</b>	18	---
Iron	ppm	ASTM D5185m	>200	<b>1</b>	16	---
Chromium	ppm	ASTM D5185m	>15	<b>&lt;1</b>	0	---
Nickel	ppm	ASTM D5185m	>15	<b>0</b>	0	---
Titanium	ppm	ASTM D5185m		<b>0</b>	0	---
Silver	ppm	ASTM D5185m		<b>0</b>	0	---
Aluminum	ppm	ASTM D5185m	>25	<b>2</b>	0	---
Lead	ppm	ASTM D5185m	>100	<b>0</b>	0	---
Copper	ppm	ASTM D5185m	>200	<b>&lt;1</b>	0	---
Tin	ppm	ASTM D5185m	>25	<b>0</b>	0	---
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	---
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>0</b>	0	---
Barium	ppm	ASTM D5185m		<b>0</b>	0	---
Molybdenum	ppm	ASTM D5185m		<b>0</b>	0	---
Manganese	ppm	ASTM D5185m		<b>0</b>	0	---
Magnesium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	---
Calcium	ppm	ASTM D5185m		<b>&lt;1</b>	20	---
Phosphorus	ppm	ASTM D5185m		<b>301</b>	314	---
Zinc	ppm	ASTM D5185m		<b>0</b>	0	---
Sulfur	ppm	ASTM D5185m		<b>1243</b>	3190	---

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	<b>2</b>	5	---
Sodium	ppm	ASTM D5185m		<b>2</b>	<1	---
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	2	---

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	<b>15212</b>	▲ 116332	---
Particles >6µm		ASTM D7647	>5000	<b>4310</b>	▲ 37810	---
Particles >14µm		ASTM D7647	>640	<b>201</b>	▲ 2603	---
Particles >21µm		ASTM D7647	>160	<b>41</b>	▲ 653	---
Particles >38µm		ASTM D7647	>40	<b>2</b>	19	---
Particles >71µm		ASTM D7647	>10	<b>1</b>	1	---
Oil Cleanliness		ISO 4406 (c)	>21/19/16	<b>21/19/15</b>	▲ 24/22/19	---

# OIL ANALYSIS REPORT

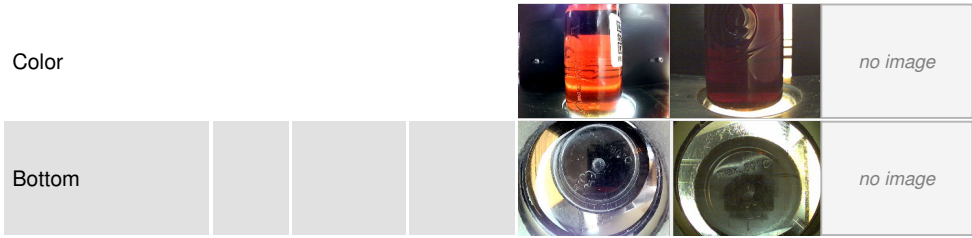


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		<b>0.56</b>	0.34	---

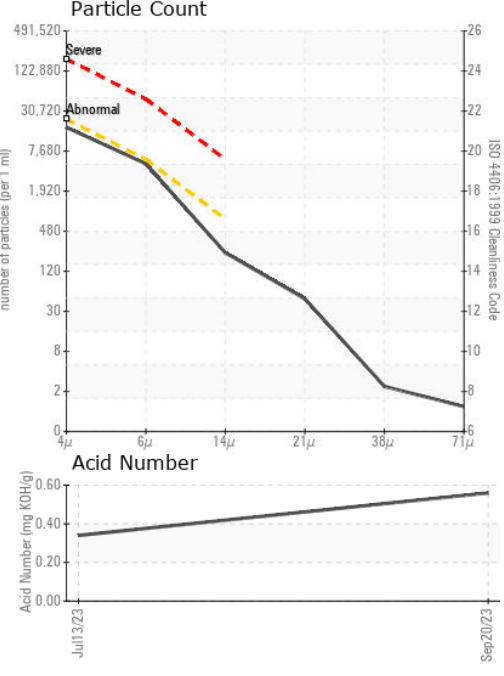
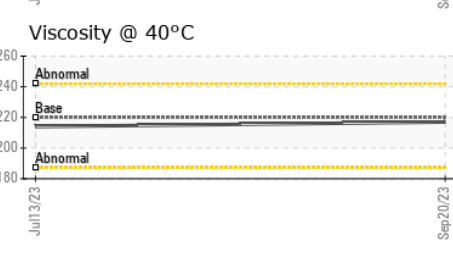
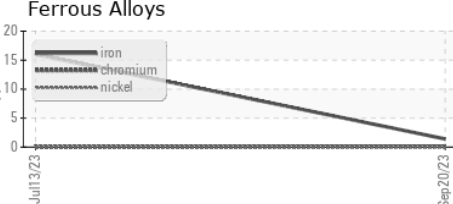
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	---
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	---
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	---
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	---
Free Water	scalar	*Visual		<b>NEG</b>	NEG	---

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	220	<b>217</b>	214	---

SAMPLE IMAGES		method	limit/base	current	history1	history2
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## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PE0001412 **Received** : 04 Oct 2023  
**Lab Number** : **05968799** **Diagnosed** : 06 Oct 2023  
**Unique Number** : 10675350 **Diagnostician** : Don Baldrige  
**Test Package** : PLANT ( Additional Tests: ICP, KV40, PQ, PrtCount, SCREEN )

**Port Townsend Paper Corporation**  
 100 Mill Rd  
 Port Townsend, WA  
 US 98368  
 Contact: LONNIE LOREE  
 lonnie.loree@ptpc.com  
 T: (907)738-6506  
 F:

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