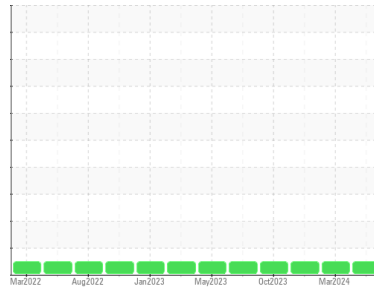


# OIL ANALYSIS REPORT

## Sample Rating Trend



**NORMAL**



Machine Id  
**HYUNDAI HL980A L-6 - NEW (S/N HHKHWL80TL000049)**  
 Component  
**Diesel Engine**  
 Fluid  
**FLEETLINE SUPERFLEET XHD 15W40 (9 GAL)**

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### 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 INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			<b>PCA0109961</b>	LP0001593	LP0001071
Sample Date	Client Info			<b>14 May 2024</b>	01 Mar 2024	21 Dec 2023
Machine Age	hrs	Client Info		<b>4788</b>	4515	4127
Oil Age	hrs	Client Info		<b>273</b>	388	382
Oil Changed	Client Info			<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel	WC Method	>5		<b>&lt;1.0</b>	<1.0	<1.0
Water	WC Method	>0.2		<b>NEG</b>	NEG	NEG
Glycol	WC Method			<b>NEG</b>	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	<b>10</b>	5	5
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>4	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m		<b>0</b>	<1	0
Silver	ppm	ASTM D5185m	>3	<b>&lt;1</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>1</b>	3	1
Lead	ppm	ASTM D5185m	>40	<b>0</b>	0	<1
Copper	ppm	ASTM D5185m	>330	<b>&lt;1</b>	<1	1
Tin	ppm	ASTM D5185m	>15	<b>0</b>	0	<1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>6</b>	26	15
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>33</b>	59	56
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Magnesium	ppm	ASTM D5185m		<b>328</b>	617	788
Calcium	ppm	ASTM D5185m		<b>2094</b>	1508	1261
Phosphorus	ppm	ASTM D5185m		<b>979</b>	1121	997
Zinc	ppm	ASTM D5185m		<b>1158</b>	1209	1228
Sulfur	ppm	ASTM D5185m		<b>3924</b>	3523	3100

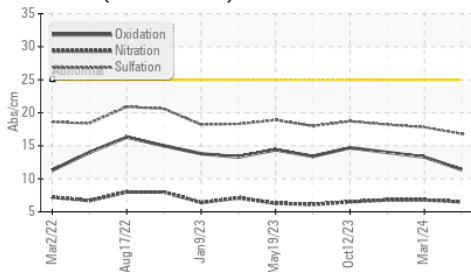
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	<b>4</b>	3	3
Sodium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	2
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	2	<1

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	<b>0.1</b>	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	<b>6.5</b>	6.8	6.8
Sulfation	Abs.1mm	*ASTM D7415	>30	<b>16.8</b>	17.8	18.2

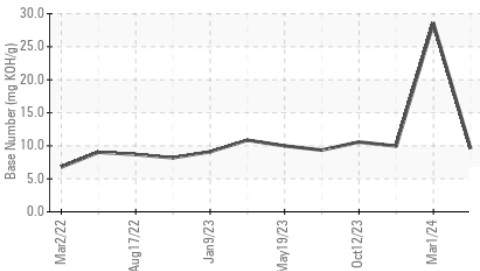
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs.1mm	*ASTM D7414	>25	<b>11.4</b>	13.3	14.0
Base Number (BN)	mg KOH/g	ASTM D2896		<b>9.57</b>	28.56	9.95

# OIL ANALYSIS REPORT

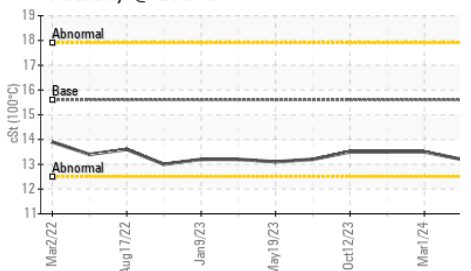
FT-IR (Direct Trend)



Base Number



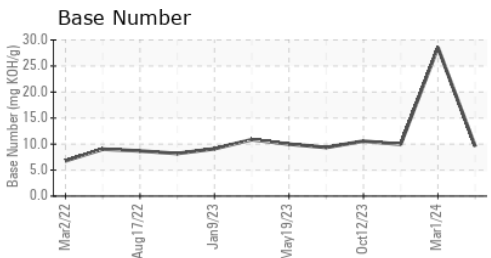
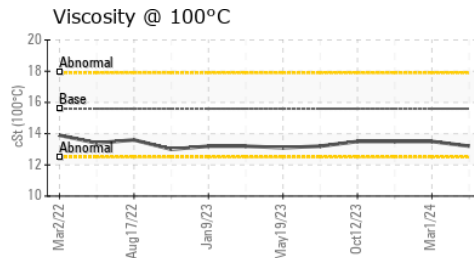
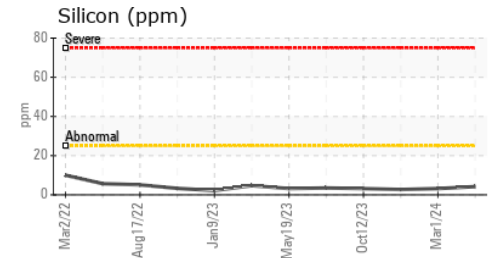
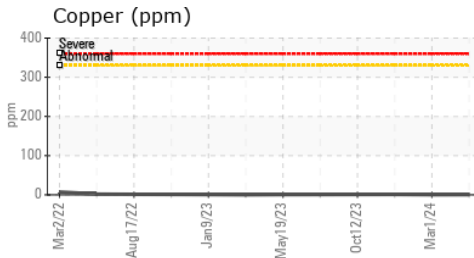
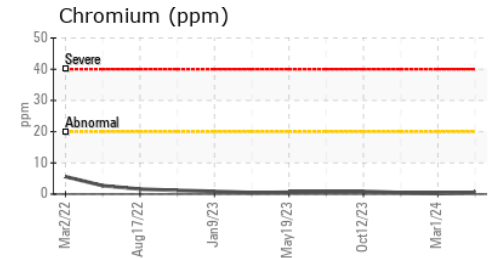
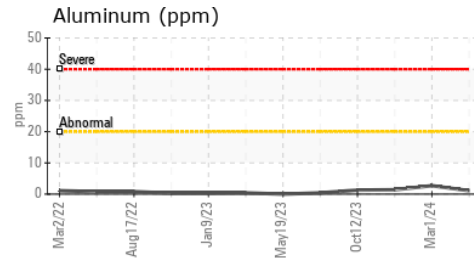
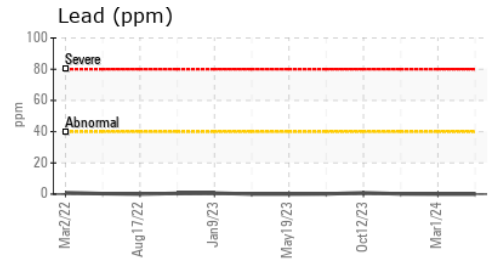
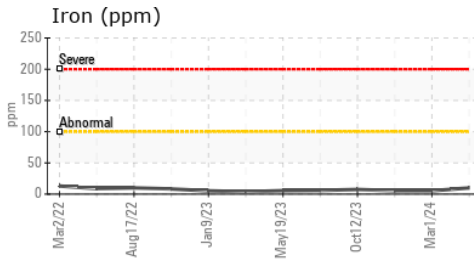
Viscosity @ 100°C



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

FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	15.6	13.2	13.5	13.5

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PCA0109961      **Received** : 22 May 2024  
**Lab Number** : 06188257      **Tested** : 24 May 2024  
**Unique Number** : 11045009      **Diagnosed** : 24 May 2024 - Wes Davis  
**Test Package** : MOB 2

**S.M. LORUSSO & SONS**  
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 US 02081  
 Contact: PAUL BECKMAN  
 pbeckman@smlorusso.com  
 T: (508)668-2603  
 F: (508)660-0232

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)