

Machine Id
HYUNDAI L-4 - HYUNDAI
Component
Diesel Engine
Fluid
FLEETLINE SUPERFLEET XHD 15W40 (12 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		PCA0109963	LP0001597	LP0001349
Sample Date		Client Info		20 May 2024	20 Mar 2024	12 Jan 2024
Machine Age	hrs	Client Info		11406	10978	10550
Oil Age	hrs	Client Info		428	428	467
Filter Age	hrs	Client Info		428	428	467
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	6	4	4
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	<1
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	3	1
Lead	ppm	ASTM D5185m	>40	6	4	2
Copper	ppm	ASTM D5185m	>330	<1	2	<1
Tin	ppm	ASTM D5185m	>15	0	1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

There is no indication of any contamination in the oil.

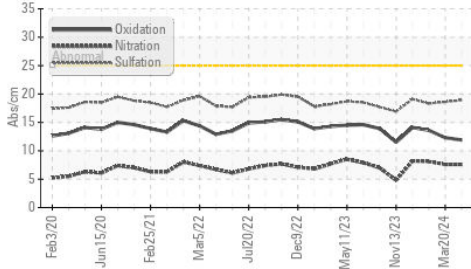
Silicon	ppm	ASTM D5185m	>25	4	5	5
Potassium	ppm	ASTM D5185m	>20	<1	3	14
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.2	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	7.6	7.6	8.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.9	18.6	18.3
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG

FLUID CONDITION

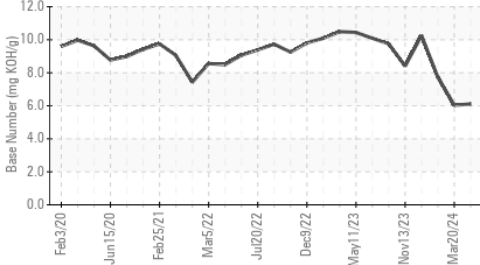
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		0	0	0
Boron	ppm	ASTM D5185m		4	12	20
Barium	ppm	ASTM D5185m		0	1	0
Molybdenum	ppm	ASTM D5185m		10	23	54
Manganese	ppm	ASTM D5185m		0	<1	0
Magnesium	ppm	ASTM D5185m		79	130	356
Calcium	ppm	ASTM D5185m		2147	2107	1566
Phosphorus	ppm	ASTM D5185m		849	878	910
Zinc	ppm	ASTM D5185m		1050	1042	1087
Sulfur	ppm	ASTM D5185m		4489	3866	3516
Oxidation	Abs/.1mm	*ASTM D7414	>25	11.9	12.3	13.6
Base Number (BN)	mg KOH/g	ASTM D2896		6.11	6.03	7.73
Visc @ 100°C	cSt	ASTM D445	15.6	13.5	13.9	13.4

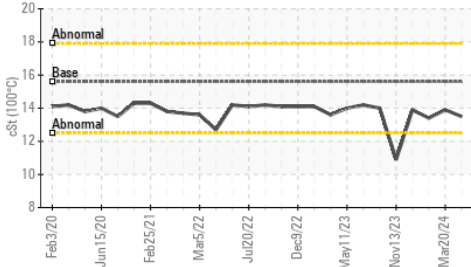
FT-IR (Direct Trend)



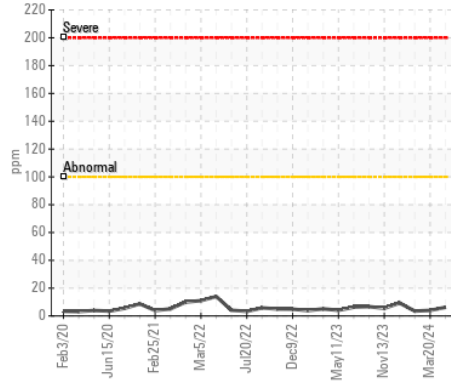
Base Number



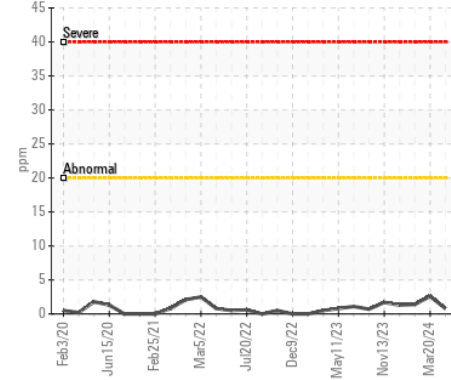
Viscosity @ 100°C



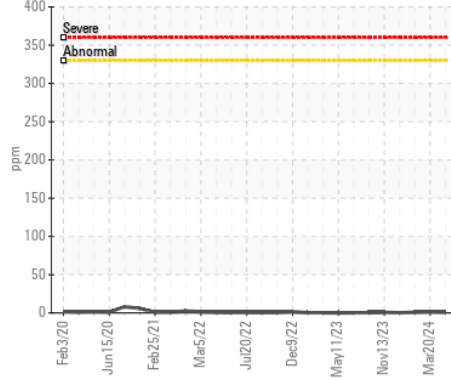
Iron (ppm)



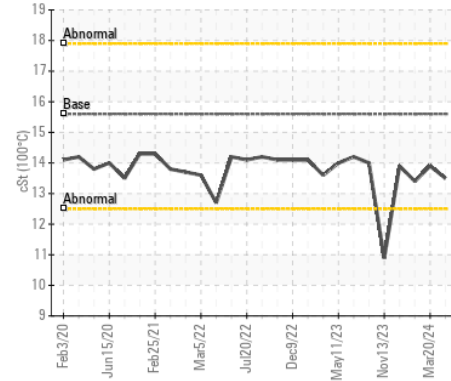
Aluminum (ppm)



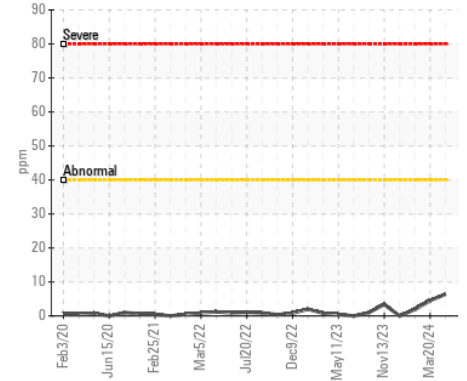
Copper (ppm)



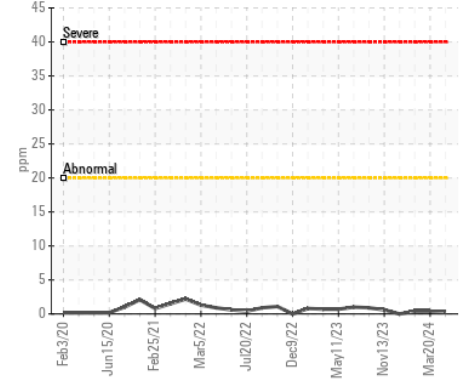
Viscosity @ 100°C



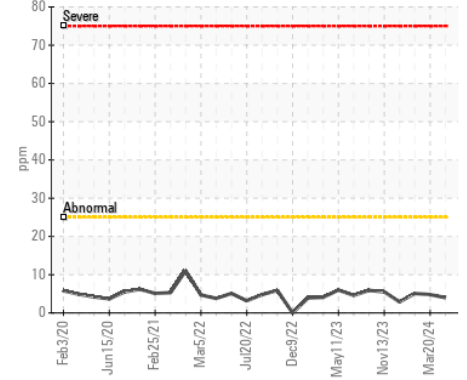
Lead (ppm)



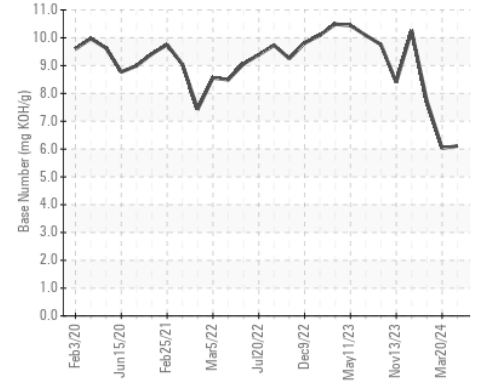
Chromium (ppm)



Silicon (ppm)



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : PCA0109963

Lab Number : 06196024

Unique Number : 11058147

Test Package : MOB 2

Received : 30 May 2024

Tested : 02 Jun 2024

Diagnosed : 02 Jun 2024 - Don Baldrige

S.M. LORUSSO & SONS

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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)