



# OIL ANALYSIS REPORT

WEAR	<b>ATTENTION</b>
CONTAMINATION	<b>ABNORMAL</b>
FLUID CONDITION	<b>ABNORMAL</b>

Machine Id  
**HYUNDAI 27249-010**

Component  
**Gasoline Engine**

Fluid  
**{not provided} (--- GAL)**

## RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component.

## WEAR

All component wear rates are normal.

## CONTAMINATION

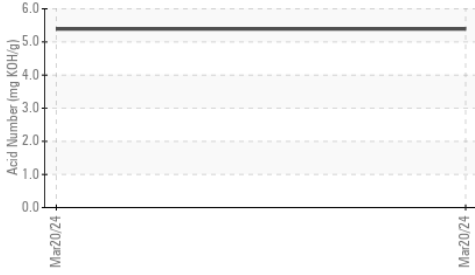
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

## FLUID CONDITION

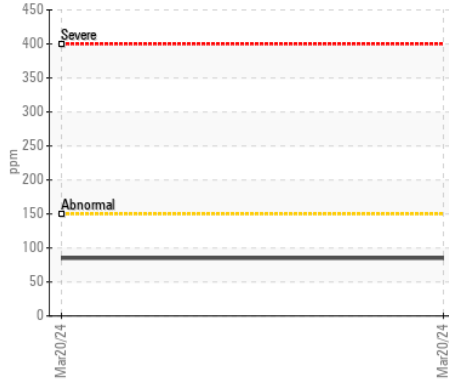
The AN level is at the top-end of the recommended limit.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WCM2308311	---	---
Sample Date		Client Info		20 Mar 2024	---	---
Machine Age	mls	Client Info		0	---	---
Oil Age	mls	Client Info		0	---	---
Filter Age	mls	Client Info		0	---	---
Oil Changed		Client Info		N/A	---	---
Filter Changed		Client Info		N/A	---	---
Sample Status				ABNORMAL	---	---
Iron	ppm	ASTM D5185m	>150	85	---	---
Chromium	ppm	ASTM D5185m	>20	1	---	---
Nickel	ppm	ASTM D5185m	>5	4	---	---
Titanium	ppm	ASTM D5185m		0	---	---
Silver	ppm	ASTM D5185m	>2	0	---	---
Aluminum	ppm	ASTM D5185m	>40	22	---	---
Lead	ppm	ASTM D5185m	>50	0	---	---
Copper	ppm	ASTM D5185m	>155	11	---	---
Tin	ppm	ASTM D5185m	>10	3	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---
Silicon	ppm	ASTM D5185m	>30	31	---	---
Potassium	ppm	ASTM D5185m	>20	1	---	---
Fuel		WC Method	>4.0	<1.0	---	---
Water		WC Method	>0.2	NEG	---	---
Glycol		WC Method		NEG	---	---
Soot %	%	*ASTM D7844		0.1	---	---
Nitration	Abs/cm	*ASTM D7624	>20	20.0	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	39.8	---	---
Silt	scalar	*Visual	NONE	NONE	---	---
Debris	scalar	*Visual	NONE	NONE	---	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---	---
Appearance	scalar	*Visual	NORML	NORML	---	---
Odor	scalar	*Visual	NORML	NORML	---	---
Emulsified Water	scalar	*Visual	>0.2	NEG	---	---
Sodium	ppm	ASTM D5185m	>400	16	---	---
Boron	ppm	ASTM D5185m		21	---	---
Barium	ppm	ASTM D5185m		<1	---	---
Molybdenum	ppm	ASTM D5185m		166	---	---
Manganese	ppm	ASTM D5185m		1	---	---
Magnesium	ppm	ASTM D5185m		512	---	---
Calcium	ppm	ASTM D5185m		1481	---	---
Phosphorus	ppm	ASTM D5185m		731	---	---
Zinc	ppm	ASTM D5185m		1070	---	---
Sulfur	ppm	ASTM D5185m		2466	---	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	46.5	---	---
Acid Number (AN)	mg KOH/g	ASTM D8045		5.39	---	---
Visc @ 100°C	cSt	ASTM D445		11.2	---	---

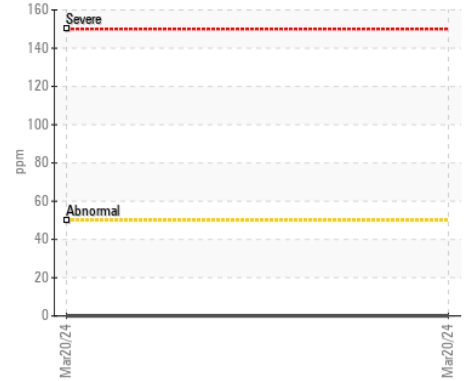
▲ Acid Number



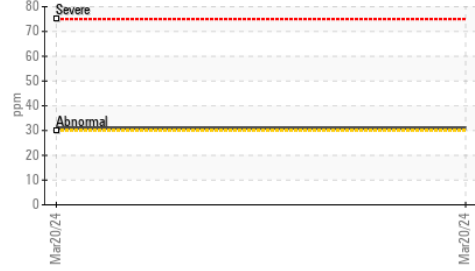
Iron (ppm)



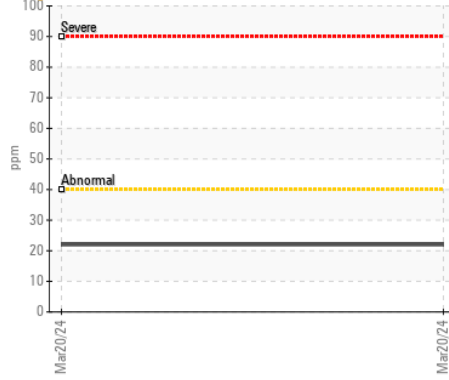
Lead (ppm)



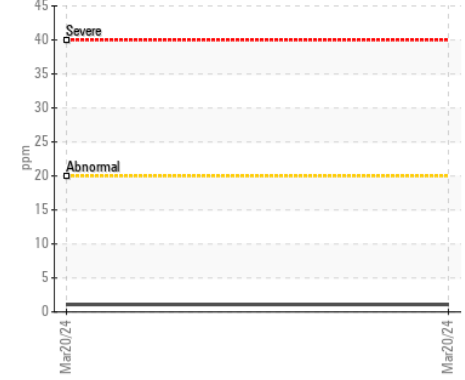
▲ Silicon (ppm)



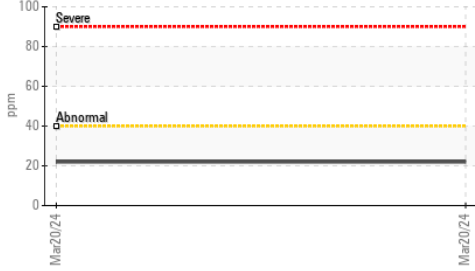
● Aluminum (ppm)



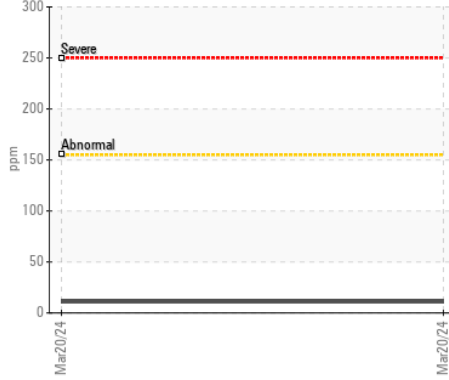
Chromium (ppm)



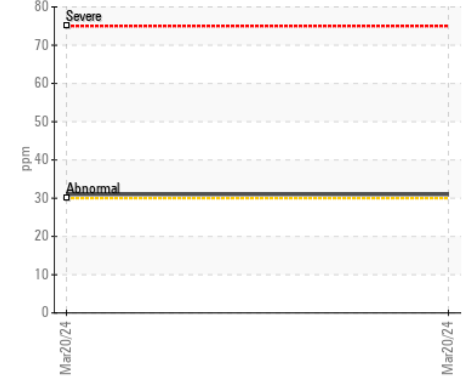
● Aluminum (ppm)



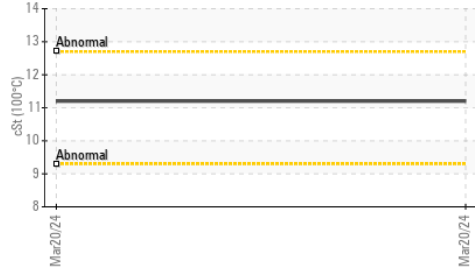
Copper (ppm)



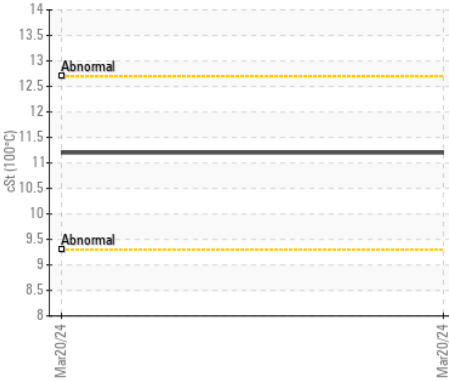
▲ Silicon (ppm)



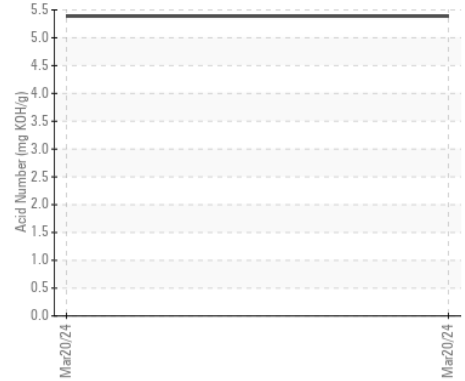
Viscosity @ 100°C



Viscosity @ 100°C



▲ Acid Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WCM2308311  
**Lab Number** : 06124362  
**Unique Number** : 10938513  
**Test Package** : MOB 2

**Received** : 20 Mar 2024  
**Tested** : 21 Mar 2024  
**Diagnosed** : 25 Mar 2024 - Jonathan Hester

**NORTH AMERICAN WEST AUTOMOTIVE FORENSIC SERVICES**  
 PO BOX 2220  
 MISSION VIEJO, CA  
 US 92690  
 Contact: CHAD TREDWAY

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)

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