

OIL ANALYSIS REPORT

CHICAGO 95TH HYUNDAI 740 L-113 (S/N HLN02CD0000285)

Component **Diesel Engine**

Fluid PETRO CANADA 15W40 (--- 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.



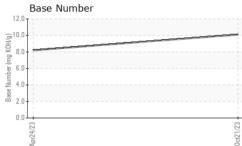
Sample Rating Trend



			Apr2023	0ct2023		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0105652	PCA0097282	
Sample Date		Client Info		21 Oct 2023	24 Apr 2023	
Machine Age	hrs	Client Info		1689	16388	
Oil Age	hrs	Client Info		250	250	
Oil Changed		Client Info		N/A	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	
Water		WC Method	>0.2	NEG	NEG	
			>0.2		NEG	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	11	25	
Chromium	ppm	ASTM D5185m	>20	<1	2	
Nickel	ppm	ASTM D5185m	>4	<1	0	
Titanium	ppm	ASTM D5185m		0	<1	
Silver	ppm	ASTM D5185m	>3	<1	0	
Aluminum	ppm	ASTM D5185m	>20	2	<1	
Lead	ppm	ASTM D5185m	>40	1	0	
Copper	ppm	ASTM D5185m	>330	<1	<1	
Tin	ppm	ASTM D5185m	>15	<1	<1	
Vanadium	ppm	ASTM D5185m		0	0	
Cadmium	ppm	ASTM D5185m		0	0	
				•	0	
	ppin		limit/base			history2
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 2	history1 3	
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base	current 2 <1	history1 3 0	
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 2 <1 57	history1 3 0 67	
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 2 <1 57 <1	history1 3 0 67 <1	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 2 <1 57 <1 946	history1 3 0 67 <1 1061	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 2 <1 57 <1 946 985	history1 3 0 67 <1 1061 1222	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 2 <1 57 <1 946 985 1018	history1 3 0 67 <1 1061 1222 1164	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	current 2 <1 57 <1 946 985 1018 1234	history1 3 0 67 <1 1061 1222 1164 1414	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 2 <1 57 <1 946 985 1018	history1 3 0 67 <1 1061 1222 1164	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	current 2 <1 57 <1 946 985 1018 1234	history1 3 0 67 <1 1061 1222 1164 1414	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		Current 2 <1 57 <1 946 985 1018 1234 2922	history1 3 0 67 <1 1061 1222 1164 1414 3678	
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 2 <1 57 <1 946 985 1018 1234 2922 current	history1 3 0 67 <1 1061 1222 1164 1414 3678 history1	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	current 2 <1 57 <1 946 985 1018 1234 2922 current 3	history1 3 0 67 <1 1061 1222 1164 1414 3678 history1 4	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	current 2 <1 57 <1 946 985 1018 1234 2922 current 3 0	history1 3 0 67 <1 1061 1222 1164 1414 3678 history1 4 3	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	limit/base >25 >20	current 2 <1 57 <1 946 985 1018 1234 2922 current 3 0 <1	history1 3 0 67 <1 1061 1222 1164 1414 3678 history1 4 3 6	 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185m	limit/base >25 >20 limit/base >3	current 2 <1 57 <1 946 985 1018 1234 2922 current 3 0 <1 current 0 <1 current 0.7	history1 3 0 67 <1 1061 1222 1164 1414 3678 history1 4 3 6 history1 1	 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	method ASTM D5185m	limit/base >25 >20 limit/base >3 >20	current 2 <1 57 <1 946 985 1018 1234 2922 current 3 0 <1 current 0.7 6.6	history1 3 0 67 <1 1061 1222 1164 1414 3678 history1 4 3 6 history1 1 7.1	 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	Imit/base >25 >20 Imit/base >3 >20 >3 >20 >30	current 2 <1 57 <1 946 985 1018 1234 2922 current 3 0 <1 current 0.7 6.6 19.6	history1 3 0 67 <1 1061 1222 1164 1414 3678 history1 4 3 6 history1 1 7.1 17.9	 history2 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	method ASTM D5185m ASTM D7624 *ASTM D7415 method	limit/base >25 >20 limit/base >3 >20 >30 >30	current 2 <1 57 <1 946 985 1018 1234 2922 current 3 0 <1 current 0.7 6.6 19.6 current	history1 3 0 67 <1 1061 1222 1164 1414 3678 history1 4 3 6 history1 1 7.1 17.9 history1	 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	Imit/base >25 >20 Imit/base >3 >20 >3 >20 >30	current 2 <1 57 <1 946 985 1018 1234 2922 current 3 0 <1 current 0.7 6.6 19.6	history1 3 0 67 <1 1061 1222 1164 1414 3678 history1 4 3 6 history1 1 7.1 17.9	 history2 history2 history2



OIL ANALYSIS REPORT



Viscosity @ 100°C



VISUAL NONE *Visual NONE NONE White Metal scalar Yellow Metal NONE NONE NONE scalar *Visual Precipitate scalar *Visua NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE Debris *Visual NONE NONE scalar Sand/Dirt NONE scalar *Visual NONE NONE NORML Appearance *Visual NORML NORML scalar Odor NORML NORML scalar *Visual NORML **Emulsified Water** scalar *Visual >0.2 NEG NEG Free Water scalar *Visual NEG NEG **FLUID PROPERTIES** Visc @ 100°C cSt ASTM D445 15.0 14.2 GRAPHS Iron (ppm) Lead (ppm) 250 100 200 80 150 60 ppm ppm 100 40 50 20 Oct21/23 Aluminum (ppm) Chromium (ppm) 50 5 40 40 30 30 10 0ct21/23 Silicon (ppm) Copper (ppm) 400 8 30 6 la 200 ۲,40 100 20

0ct21/23

0ct21/23 -

:01 Feb 2024

12.0 (B)H0.0

8 ((Buu) 6.0 Number

4.0

0.0

Apr24/23

Base 2.0 Base Number



Lab Number : 06076573 Tested :01 Feb 2024 : 01 Feb 2024 - Wes Davis Unique Number : 10858664 Diagnosed Test Package : MOB 1 (Additional Tests: TBN) Contact: PACO MARTINEZ Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. paco.martinez@gsl.com * - 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)

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

Received

Viscosity @ 100°C

20

18 Abno

10

Apr24/23

Abnormal 12

: PCA0105652

ŝ 14

Laboratory

Sample No.

NORTH AMERICAN STEVEDORING CO

9301 S KREITER AVE

CHICAGO, IL

US 60617

T:

F: