

OIL ANALYSIS REPORT

DSHP13BLKTOP

Component

5 New (Unused) Oil

PETRO CANADA DURON SHP 15W30 (--- LTR)

Sample Rating Trend NORMAL

DIAGNOSIS

Recommendation

This is a baseline read-out on the submitted sample.

Wear

{not applicable}

Contamination

{not applicable}

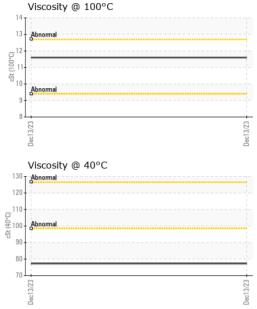
Fluid Condition

{not applicable}

Sample Number	111)				Dec2023		
Sample Date Client Info 13 Dec 2023	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age	Sample Number		Client Info		PC		
Oil Changed	Sample Date		Client Info		13 Dec 2023		
Contamped Client Info N/A	Machine Age	hrs	Client Info		0		
NORMAL	Oil Age	hrs	Client Info		0		
Water	Oil Changed		Client Info		N/A		
Water WC Method NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185(m) <1 Chromium ppm ASTM D5185(m) 0 Nickel ppm ASTM D5185(m) 0 Silver ppm ASTM D5185(m) 0 Aluminum ppm ASTM D5185(m) 0 Lead ppm ASTM D5185(m) 0 Copper ppm ASTM D5185(m) 0 Copper ppm ASTM D5185(m) 0 Vanadium ppm ASTM D5185(m) 0 Beryllium ppm ASTM D5185(m) 0 Cadmium ppm ASTM D5185(m) 0 Barium	Sample Status				NORMAL		
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM DS185(m) <1	CONTAMINATI	ION	method	limit/base	current	history1	history2
Chromium	Water		WC Method		NEG		
Chromium ppm ASTM D5185(m) 0 Nickel ppm ASTM D5185(m) 0 Titanium ppm ASTM D5185(m) 0 Siliver ppm ASTM D5185(m) 0 Aluminum ppm ASTM D5185(m) 0 Lead ppm ASTM D5185(m) 0 Copper ppm ASTM D5185(m) 0 Vanadium ppm ASTM D5185(m) 0 Beryllium ppm ASTM D5185(m) 0 <td>WEAR METALS</td> <td>S</td> <td>method</td> <td>limit/base</td> <td>current</td> <td>history1</td> <td>history2</td>	WEAR METALS	S	method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185(m)		<1		
Description	Chromium	ppm	ASTM D5185(m)		0		
Silver	Nickel	ppm	ASTM D5185(m)		0		
Ast	Titanium	ppm	ASTM D5185(m)		0		
Lead	Silver	ppm	ASTM D5185(m)		0		
Description	Aluminum	ppm	ASTM D5185(m)		1		
Antimony	_ead	ppm	ASTM D5185(m)		0		
Antimony	Copper	ppm	ASTM D5185(m)		0		
Vanadium ppm ASTM D5185(m) 0 Beryllium ppm ASTM D5185(m) 0 Cadmium ppm ASTM D5185(m) 0 ADDITIVES method limit/base current history1 history1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 100 Wanganesium ppm ASTM D5185(m) 100 Magnesium ppm ASTM D5185(m) 100 Phosphorus ppm ASTM D5185(m) 2910 Sulfur ppm <td>Tin</td> <td>ppm</td> <td>ASTM D5185(m)</td> <td></td> <td>0</td> <td></td> <td></td>	Tin	ppm	ASTM D5185(m)		0		
Beryllium	Antimony	ppm	ASTM D5185(m)		0		
ADDITIVES	/anadium	ppm	ASTM D5185(m)		0		
ADDITIVES	Beryllium	ppm	ASTM D5185(m)		0		
Boron	Cadmium	ppm			0		
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185(m) 59 Manganese ppm ASTM D5185(m) 0 Magnesium ppm ASTM D5185(m) 1030 Calcium ppm ASTM D5185(m) 1100 Phosphorus ppm ASTM D5185(m) 1210 Zinc ppm ASTM D5185(m) 2910 Sulfur ppm ASTM D5185(m) <1	Boron	ppm	ASTM D5185(m)		1		
Manganese ppm ASTM D5185(m) 0 Magnesium ppm ASTM D5185(m) 1030 Calcium ppm ASTM D5185(m) 1070 Phosphorus ppm ASTM D5185(m) 1210 Zinc ppm ASTM D5185(m) 2910 Sulfur ppm ASTM D5185(m) <1	Barium	ppm	ASTM D5185(m)		0		
Magnesium ppm ASTM D5185(m) 1030 Calcium ppm ASTM D5185(m) 1070 Phosphorus ppm ASTM D5185(m) 1100 Zinc ppm ASTM D5185(m) 2910 Sulfur ppm ASTM D5185(m) 2910 Lithium ppm ASTM D5185(m) <1	Molybdenum	ppm	ASTM D5185(m)		59		
Calcium ppm ASTM D5185(m) 1070 Phosphorus ppm ASTM D5185(m) 1100 Zinc ppm ASTM D5185(m) 1210 Sulfur ppm ASTM D5185(m) 2910 Lithium ppm ASTM D5185(m) <1	Manganese	ppm	ASTM D5185(m)		0		
Phosphorus ppm ASTM D5185(m) 1100 Zinc ppm ASTM D5185(m) 1210 Sulfur ppm ASTM D5185(m) 2910 Lithium ppm ASTM D5185(m) <1	Magnesium	ppm	ASTM D5185(m)		1030		
Table Tabl	Calcium	ppm	ASTM D5185(m)		1070		
Sulfur	Phosphorus	ppm	ASTM D5185(m)		1100		
Lithium ppm ASTM D5185(m) <1 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185(m) 4 Sodium ppm ASTM D5185(m) <1	Zinc	ppm	ASTM D5185(m)		1210		
CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185(m) 4 Sodium ppm ASTM D5185(m) <1	Sulfur	ppm	ASTM D5185(m)		2910		
Silicon ppm ASTM D5185(m) 4	Lithium	ppm	ASTM D5185(m)		<1		
Sodium	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185(m) >20 <1 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* 0 Nitration Abs/cm ASTM D7624* 4.1 Sulfation Abs/.1mm ASTM D7415* 17.6 FLUID DEGRADATION method limit/base current history1 history	Silicon	ppm	ASTM D5185(m)		4		
INFRA-RED method limit/base current history1 history Soot % % ASTM D7844* 0 Nitration Abs/cm ASTM D7624* 4.1 Sulfation Abs/.1mm ASTM D7415* 17.6 FLUID DEGRADATION method limit/base current history1 history	Sodium	ppm	ASTM D5185(m)		<1		
Soot % % ASTM D7844* 0 Nitration Abs/cm ASTM D7624* 4.1 Sulfation Abs/.1mm ASTM D7415* 17.6 FLUID DEGRADATION method limit/base current history1 history	Potassium	ppm	ASTM D5185(m)	>20	<1		
Nitration Abs/cm ASTM D7624* 4.1 Sulfation Abs/.1mm ASTM D7415* 17.6 FLUID DEGRADATION method limit/base current history1 history	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm ASTM D7415* 17.6 FLUID DEGRADATION method limit/base current history1 history	Soot %	%	ASTM D7844*		0		
FLUID DEGRADATION method limit/base current history1 history	Nitration	Abs/cm	ASTM D7624*		4.1		
	Sulfation	Abs/.1mm	ASTM D7415*		17.6		
Oxidation Abs/.1mm ASTM D7414* 12.7	FLUID DEGRAD	DATION	method	limit/base	current	history1	history2
- -	Oxidation	Abs/.1mm	ASTM D7414*		12.7		



OIL ANALYSIS REPORT



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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE		
Yellow Metal	scalar	Visual*	NONE	NONE		
Precipitate	scalar	Visual*	NONE	NONE		
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*		NEG		
Free Water	scalar	Visual*		NEG		
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)		77.3		
Visc @ 100°C	cSt	ASTM D7279(m)		11.6		
Viscosity Index (VI)	Scale	ASTM D2270*		142		
SAMPLE IMAG	ES	method	limit/base	current	history1	history2
Color					no image	no image
Color					no image no image	no image no image



CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number

: PC

: 02604934 Unique Number : 5698019

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Petro-Canada Technical/Nick Finelli Recieved Diagnosed

: 22 Dec 2023 : 28 Dec 2023

Diagnostician : Kevin Marson

Mississauga, ON CA L5J 1K2

Test Package : TEST (Additional Tests: FT-IR, ICP, ICP-NEWOIL, KV100, KV40, Spat, VI) To discuss this sample report, contact Customer Service at 1-800-268-2131.

Contact: Nick Finelli nick.finelli@hfsinclair.com

Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

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