

OIL ANALYSIS REPORT

Sample Rating Trend





Component

Diesel Engine

PETRO CANADA DURON SHP 10W30 (--- QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

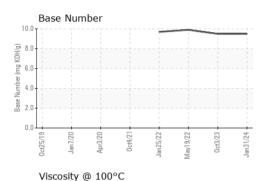
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

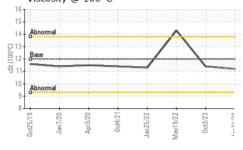
Sample Date Image Image Machine Age Image Image Oil Changed Image Image Sample Status Image Image CONTAMINATION Image Image Fuel Image Image Image Water Image Image Image Glycol Image Image Image WEAR METALS Image Image Image Iron ppm Image Image Image Nickel ppm Image Image Image Aluminum ppm Image Image Image Image Autimony ppm Image Image Image Image Image Antimony ppm Image					
Sample NumberISample DateIIIMachine AgeIIISOil AgeIIISOil ChangedIIISample StatusIIICONTAMINATIONFuelIIIWaterIIIIGlycolIIIIWEAR METALSIronppmChromiumppmNickelppmJiltaniumppmSilverppmAluminumppmLeadppmCopperppmAntimonyppmVanadiumppmBoronppmBariumppmMagnesiumppmAlanganeseppmJincppmSiliconppmSiliconppmSiliconppmSiliconppmSiliconppmSiliconppmSiliconppmSiliconppmSiliconppmSiliconppmSiliconppmSiliconppmSiliconppmSiliconppmSiliconppmSoot %%NitrationAbs/InmSulfation%	method	limit/base	Current	history1	history2
Sample DateImageImageMachine AgemlsGOil AgemlsGOil ChangedSample StatusImageCONTAMINATIONFuelMaterGlycolMaterGlycolMaterChromiumppmNickelppmJitaniumppmSilverppmAluminumppmLeadppmCopperppmJinppmAntimonyppmVanadiumppmBoronppmBariumppmMalganeseppmMagnesiumppmZincppmSulfurppmSiliconppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincppmJincp	Client Info		PCA0113667	PCA0105784	PCA0068556
Machine AgemlsmlsDil AgemlsmlsDil ChangedmlsSample StatusImagedCONTAMINATIONFuelmlsWatermlsGlycolmlsWEAR METALSronppmChromiumppmNickelppmPomppmAuminumppmLeadppmCopperppmCopperppmAntimonyppmVanadiumppmCadmiumppmAntimonyppmVanadiumppmCadmiumppmMalganeseppmMagnesiumppmPhosphorusppmZincppmSiliconppmPotassiumppmPotassiumppmSulfurppmSoot %%SulfationAbs/.1mm	Client Info		31 Jan 2024	03 Oct 2023	19 May 2022
Dil Age mls Image Dil Changed Image Sample Status Image CONTAMINATION Fuel Water Image Glycol Image WEAR METALS ron ppm Image Silver ppm Image Pointer ppm Image Silver ppm Image Auminum ppm Image Lead ppm Image Copper ppm Image Copper ppm Image Copper ppm Image Cadmium ppm Image Manganese ppm Image Magnesium ppm Image CONTAMINANNAND ppm Image Contramine ppm Image Manganese ppm Image Contramine ppm Image Contramine ppm Image Contramine ppm Image Codium ppm Image Contramine ppm Image Contramine ppm Image Contramine ppm Image <td>Client Info</td> <td></td> <td>90355</td> <td>89838</td> <td>84163</td>	Client Info		90355	89838	84163
Dil Changed (1) Sample Status (1) CONTAMINATION (1) Fuel (1) Water (1) Glycol (1) WEAR METALS (1) ron ppm Dhromium ppm Silver ppm Auminum ppm Lead ppm Copper ppm Copper ppm Cadmium ppm Autimony ppm Vanadium ppm Cadmium ppm Aunganese ppm Magnesium ppm CONTAMINANTION ppm Contramine ppm Manganese ppm Phosphorus ppm Contramine ppm Contramine ppm Phosphorus ppm Silicon ppm Soot % % Silicon ppm Sulfation Abs/.1mm	Client Info		523	0	10000
Sample Status CONTAMINATION Fuel Mater Water Mater Silycol Mater Webar METALS Mater Chromium ppm Nickel ppm Fitanium ppm Silver ppm Auminum ppm Lead ppm Copper ppm Cadmium ppm Antimony ppm Zadamium ppm Antimony ppm Antimony ppm Vanadium ppm Antimony ppm Antimony ppm Vanadium ppm Audium ppm Audium ppm Codamium ppm Manganese ppm Magnesium ppm Phosphorus ppm Silicon ppm Sodium ppm Potassium ppm Potassium ppm Sulfation Abs/.1mm	Client Info		Changed	Changed	Changed
Fuel Mater Mater Mater Palycol Mater WEAR METALS Ppm Mater ron ppm Mater Chromium ppm Mater Silver ppm Mater Silver ppm Mater Aluminum ppm Mater Lead ppm Mater Copper ppm Mater Copper ppm Mater Cadmium ppm Mater Cadmium ppm Mater Barium ppm Mater Magnesium ppm Mater Phosphorus ppm Mater Phosphorus ppm Mater Sulfur ppm Mater Potassium ppm Mater Soot % % % Sulfation Abs/.1mm Sulfation			NORMAL	NORMAL	ATTENTION
Water Name Glycol Name WEAR METALS ron ppm Chromium ppm Nickel ppm Fitanium ppm Silver ppm Aluminum ppm Lead ppm Copper ppm Vanadium ppm Zadmium ppm Zadmium ppm Antimony ppm Vanadium ppm Zadmium ppm Manganese ppm Magnesium ppm Phosphorus ppm Zinc ppm Sulfur ppm Potassium ppm Potassium ppm Sulfation Abs/.1mm	method	limit/base	current	history1	history2
Glycol N WEAR METALS ron ppm / Chromium ppm / Nickel ppm / Fitanium ppm / Silver ppm / Auminum ppm / Lead ppm / Copper ppm / Antimony ppm / Vanadium ppm / Cadmium ppm / Cadmium ppm / Baron ppm / Molybdenum ppm / Magnesium ppm / Phosphorus ppm / CONTAMINANTS Silicon ppm / Solifur ppm / Potassium ppm / / Soot % % % % Sulfation Abs/.1mm /	WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS ron ppm / Chromium ppm / Silver ppm / Silver ppm / Auminum ppm / Lead ppm / Copper ppm / Copper ppm / Cadmium ppm / Molybdenum ppm / Magnesium ppm / Colcium ppm / Phosphorus ppm / CONTAMINANTS Silicon ppm / Soldium ppm / / Potassium ppm / / Soot % % / / Sulfation Abs/.1mm / /	WC Method	>0.2	NEG	NEG	NEG
ron ppm / Chromium ppm / Nickel ppm / Nickel ppm / Silver ppm / Aluminum ppm / Lead ppm / Copper ppm / Copper ppm / Antimony ppm / Antimony ppm / Antimony ppm / Cadmium ppm / Cadmium ppm / Antimony ppm / Antimony ppm / Antimony ppm / Cadmium ppm / Contashing ppm / C	WC Method		NEG	NEG	NEG
Chromium ppm // Chromium ppm // Nickel ppm // Fitanium ppm // Silver ppm // Silver ppm // Aluminum ppm // Lead ppm // Copper ppm / Copper ppm / Antimony ppm / Vanadium ppm / Cadmium ppm / ADDITIVES Boron ppm / Barium ppm / Molybdenum ppm / Magnesium ppm / Phosphorus ppm / Phosphorus ppm / CONTAMINANTS Silicon ppm / Sodium ppm / Potassium ppm / Soot % % % % Nitration Abs/.1mm *	method	limit/base	current	history1	history2
Nickel ppm / Nickel ppm / Fitanium ppm / Silver ppm / Aluminum ppm / Lead ppm / Copper ppm / Copper ppm / Antimony ppm / Vanadium ppm / Cadmium ppm / Antimony ppm / Cadmium ppm / Boron ppm / Molybdenum ppm / Maganese ppm / Phosphorus ppm / CONTAMINANTS Silicon ppm / Solicon ppm / Potassium ppm / Potassium ppm / Soot % % % Sulfation Abs/.1mm /	ASTM D5185m	>100	7	6	8
Fitanium ppm / Silver ppm / Silver ppm / Silver ppm / Lead ppm / Copper ppm / Copper ppm / Antimony ppm / Vanadium ppm / Cadmium ppm / Cadmium ppm / ADDITIVES Boron ppm / Boron ppm / Magnesium ppm / Magnesium ppm / Phosphorus ppm / Phosphorus ppm / Sulfur ppm / CONTAMINANTS Silicon ppm / Sodium ppm / Potassium ppm / Soot % % % % Sulfation Abs/.1mm 1	ASTM D5185m	>20	<1	0	0
Silverppm/Aluminumppm/Leadppm/Copperppm/Tinppm/Antimonyppm/Vanadiumppm/Cadmiumppm/Cadmiumppm/Antimonyppm/Vanadiumppm/Cadmiumppm/ADDITIVESBoronppmBariumppm/Maganeseppm/Magnesiumppm/Calciumppm/Phosphorusppm/Zincppm/Sulfurppm/Sodiumppm/Potassiumppm/Sodiumppm/Soot %%%SulfationAbs/.1mm	ASTM D5185m	>4	0	0	0
Aluminum ppm // Lead ppm // Copper ppm // Copper ppm // Fin ppm // Antimony ppm // Vanadium ppm // Cadmium ppm // ADDITIVES Boron ppm // Boron ppm // Molybdenum ppm // Maganesium ppm // Calcium ppm // Phosphorus ppm // Sulfur ppm // CONTAMINANTS Silicon ppm // Sodium ppm // Potassium ppm // Soot % % % % Sulfation Abs/.1mm */	ASTM D5185m		<1	0	0
Lead ppm // Copper ppm // Fin ppm // Antimony ppm // Vanadium ppm // Cadmium ppm // ADDITIVES Barium ppm Barium ppm / Molybdenum ppm / Maganese ppm / Calcium ppm / Phosphorus ppm / CONTAMINANTS Silicon ppm Solifur ppm / Potassium ppm / Soot % % % Sulfation Abs/.1mm /	ASTM D5185m	>3	0	0	<1
Copper ppm / Copper ppm / Fin ppm / Antimony ppm / /anadium ppm / /anadium ppm / Cadmium ppm / ADDITIVES Boron ppm / Barium ppm / Molybdenum ppm / Magnesium ppm / Calcium ppm / Phosphorus ppm / CONTAMINANTS Silicon ppm / Solifur ppm / Potassium ppm / Soot % % % % Sulfation Abs/.1mm *	ASTM D5185m	>20	3	1	1
Fin ppm // Antimony ppm // Vanadium ppm // Cadmium ppm // Cadmium ppm // ADDITIVES // Boron ppm // Barium ppm / Molybdenum ppm / Maganese ppm / Calcium ppm / Phosphorus ppm / CONTAMINANTS Silicon ppm / Sodium ppm / Potassium ppm / Soot % % % % Sulfation Abs/.1mm 1	ASTM D5185m	>40	<1	<1	<1
Antimony ppm / /anadium ppm / Cadmium ppm / ADDITIVES Boron ppm / Barium ppm / Molybdenum ppm / Maganese ppm / Magnesium ppm / Calcium ppm / Phosphorus ppm / Calcium ppm / Calcium ppm / Calcium ppm / Calcium ppm / Contamina ppm / CONTAMINANTS Silicon ppm / CONTAMINANTS Silicon ppm / CONTAMINANTS Silicon ppm / Contassium ppm / Con	ASTM D5185m	>330	3	3	2
Vanadium ppm // Cadmium ppm // ADDITIVES // Boron ppm // Barium ppm // Aolybdenum ppm // Maganese ppm // Aagnesium ppm // Calcium ppm // Phosphorus ppm // Zinc ppm // Sulfur ppm // CONTAMINANTS Silicon ppm // Sodium ppm // Potassium ppm // Soot % % // Sulfation Abs/.1mm //	ASTM D5185m	>15	<1	0	<1
Cadmium ppm // ADDITIVES Barium ppm // Barium ppm // Molybdenum ppm // Maganese ppm // Magnesium ppm // Calcium ppm // Phosphorus ppm / Zinc ppm / Sulfur ppm / CONTAMINANTS Silicon ppm / Sodium ppm / Potassium ppm / Sodium ppm / Soot % % % Sulfation Abs/.1mm /	ASTM D5185m				
ADDITIVES Boron ppm Barium ppm Molybdenum ppm Manganese ppm Magnesium ppm Dalcium ppm Calcium ppm Phosphorus ppm Zinc ppm Sulfur ppm CONTAMINANTS Silicon ppm Potassium ppm Potassium ppm INFRA-RED Soot % % Vitration Abs/cm	ASTM D5185m		<1	0	0
Boron ppm // Barium ppm // Barium ppm // Molybdenum ppm / Manganese ppm / Magnesium ppm / Calcium ppm / Phosphorus ppm / Zinc ppm / Sulfur ppm / Soliticon ppm / Potassium ppm / Potassium ppm / Soot % % % Nitration Abs/cm 1	ASTM D5185m		0	0	0
Barium ppm / Molybdenum ppm / Manganese ppm / Magnesium ppm / Calcium ppm / Phosphorus ppm / Sulfur ppm / CONTAMINANTS Silicon ppm / CONTAMINANTS Silicon ppm / CONTAMINANTS Silicon ppm / Notassium ppm / Sodium ppm / Sodium ppm / Sodium ppm / Sodissium ppm / Sodissium ppm / Soot % % %	method	limit/base	current	history1	history2
Molybdenum ppm // Manganese ppm // Magnesium ppm // Calcium ppm // Phosphorus ppm / Phosphorus ppm / CONTAMINANTS Silicon ppm / Potassium ppm / INFRA-RED Soot % % * Sulfation Abs/.1mm *	ASTM D5185m	2	15	16	3
Manganese ppm // Magnesium ppm // Calcium ppm / Phosphorus ppm / Zinc ppm / Sulfur ppm / CONTAMINANTS Silicon ppm / Potassium ppm / Potassium ppm / Soot % % % Nitration Abs/cm 1	ASTM D5185m	0	2	0	2
Magnesium ppm // Calcium ppm // Phosphorus ppm // Zinc ppm / Sulfur ppm / CONTAMINANTS Silicon ppm / Sodium ppm / Potassium ppm / INFRA-RED % / Soot % % / Sulfation Abs/cm 1	ASTM D5185m	50	63	56	59
Calcium ppm / Phosphorus ppm / Zinc ppm / Sulfur ppm / CONTAMINANTS Silicon ppm / Sodium ppm / Potassium ppm / INFRA-RED Soot % % ' Vitration Abs/cm '	ASTM D5185m	0	0	0	<1
Phosphorus ppm // Zinc ppm // Sulfur ppm // CONTAMINANTS Silicon ppm // Sodium ppm // Potassium ppm // INFRA-RED Soot % % // Vitration Abs/cm //	ASTM D5185m	950	877	843	895
Zinc ppm / Sulfur ppm / CONTAMINANTS Silicon ppm / Sodium ppm / Potassium ppm / INFRA-RED Soot % % % Vitration Abs/cm *	ASTM D5185m	1050	1215	1149	1048
Sulfur ppm CONTAMINANTS Silicon ppm Sodium ppm Potassium ppm INFRA-RED Soot % % Nitration Abs/cm Sulfation Abs/.1mm	ASTM D5185m	995	1062	867	1037
CONTAMINANTS Silicon ppm Sodium ppm Potassium ppm INFRA-RED Soot % % Nitration Abs/cm Sulfation Abs/.1mm	ASTM D5185m	1180	1206	1146	1232
Solicon ppm P Sodium ppm P Potassium ppm P INFRA-RED P Soot % % % Nitration Abs/cm %	ASTM D5185m	2600	3603	3286	3132
Sodium ppm // Potassium ppm / INFRA-RED // Soot % % / Vitration Abs/cm / Sulfation Abs/.1mm /	method	limit/base	current	history1	history2
Potassium ppm / INFRA-RED Soot % % Vitration Abs/cm f Sulfation Abs/.1mm f	ASTM D5185m	>25	4	2	3
INFRA-RED Soot % % * Nitration Abs/cm *	ASTM D5185m		0	2	0
Soot %%NitrationAbs/cmSulfationAbs/.1mm	ASTM D5185m	>20	2	2	1
Vitration Abs/cm Sulfation Abs/.1mm	method	limit/base	current	history1	history2
Sulfation Abs/.1mm	*ASTM D7844	>3	0.1	0.2	0.2
	*ASTM D7624	>20	4.9	5.3	5.4
	*ASTM D7415	>30	16.9	17.3	18.7
FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation Abs/.1mm	*ASTM D7414	>25	13.0	13.3	15.4
Base Number (BN) mg KOH/g	ASTM D2896		9.5	9.5	9.9

Contact/Location: ED DAVIS - MILLOG



OIL ANALYSIS REPORT







Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Certificate L2367

Laboratory

Sample No.

Lab Number