

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Component Diesel Engine Fluid

### PETRO CANADA DURON SHP 15W40 (--- GAL)

### DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

#### Wear

Metal levels are typical for a components first oil change.

#### Contamination

There is no indication of any contamination in the oil.

#### Fluid Condition

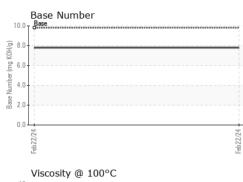
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date      Client Info      22 Feb 2024          Machine Age      hrs      Client Info      18332          Oil Age      hrs      Client Info      18332          Sample Status      Client Info      Not Changd          CONTAMINATION      method      imit/base      current      history1      history2        Fuel      WC Method      >3.0      <1.0          Water      WC Method      >0.2      NEG          Glycol      WC Method      >0.2      NEG          WEAR METALS      method      imit/base      current      history2         Nickel      ppm      ASTM D5165n      >120      7          Silver      ppm      ASTM D5165n      >20      <1          Nickel      ppm      ASTM D5165n      >20      2          Silver      ppm      ASTM D5165n	N SHP 15W40 (-	GAL)			Feb2024		
Sample Date      Client Info      22 Feb 2024          Machine Age      hrs      Client Info      18332          Oil Age      hrs      Client Info      18332          Sample Status      Client Info      Not Changd          CONTAMINATION      method      Imit/base      current      history1      history2        Fuel      WC Method      >3.0      <1.0          Water      WC Method      50.2      NEG          WEAR METALS      method      imit/base      current      history2         Wick      ppm      ASTM D5165n      >12.0      7          Nickel      ppm      ASTM D5165n      >2.0      <1          Silver      ppm      ASTM D5165n      >2.0      2          Aluminum      ppm      ASTM D5165n<>>2.0      2           Silver      ppm	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age      hrs      Client Info      18332          Oil Age      hrs      Client Info      18332          Oil Changed      Client Info      18332          Sample Status      Client Info      Not Changd          CONTAMINATION      method      init/base      current      history1      history2        Fuel      WC Method      >3.0      <1.0	Sample Number		Client Info		GFL0110118		
Oil Age      hrs      Client Info      18332          Sample Status      Client Info      Not Changd          Sample Status      Client Info      Nor Changd          CONTAMINATION      method      imit/base      current      history1      history2        Fuel      WC Method      >0.0      NEG          Water      WC Method      >0.0      NEG          Weter      WC Method      >0.0      NEG          Weter      WC Method      >0.0           Weter      ppm      ASTM D5185m      >120      7          Itrainum      ppm      ASTM D5185m      >20      <1	Sample Date		Client Info		22 Feb 2024		
Oil Changed      Client Info      Not Changd          Sample Status      Imit/base      current      history1      history2        Fuel      WC Method      >3.0      <1.0          Water      WC Method      >0.2      NEG          WEAR METALS      method      limit/base      current      history1      history2        Iron      ppm      ASTM D5185m      >120      7          Ochronium      ppm      ASTM D5185m      >20      <1          Nickel      ppm      ASTM D5185m      >20      <1          ASTM D5185m      >20      2      <1           ASTM D5185m      >20      2      0           Not Kall      ppm      ASTM D5185m      >20      2          Not Kall      ppm      ASTM D5185m      920      2          Astom D5185m<	Machine Age	hrs	Client Info		18332		
Sample Status      NORMAL          CONTAMINATION      method      imit/base      current      history1      history2        Fuel      WC Method      >3.0      <1.0	Oil Age	hrs	Client Info		18332		
CONTAMINATION      method      limit/base      current      history1      history2        Fuel      WC Method      >3.0      <1.0	Oil Changed		Client Info		Not Changd		
Fuel      WC Method      >3.0      <1.0          Water      WC Method      >0.2      NEG          Glycol      WC Method      >0.2      NEG          WEAR METALS      method      limit/base      current      history1      history2        Iron      ppm      ASTM D5185m      >20      <1	Sample Status				NORMAL		
Water      WC Method      >0.2      NEG          Glycol      WC Method      NEG          WEAR METALS      method      limit/base      current      history1      history2        Iron      ppm      ASTM D5185m      >20      <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
Glycol      WC Method      NEG          WEAR METALS      method      limit/base      current      history1      history2        Iron      ppm      ASTM D5185m      >20      <1	Fuel		WC Method	>3.0	<1.0		
WEAR METALS      method      limit/base      current      history1      history2        Iron      ppm      ASTM D5185m      >120      7          Chromium      ppm      ASTM D5185m      >20      <1	Water		WC Method	>0.2	NEG		
ron      ppm      ASTM D5185m      >120      7          Chromium      ppm      ASTM D5185m      >20      <1	Glycol		WC Method		NEG		
Chromium      ppm      ASTM D5185m      >20      <1          Nickel      ppm      ASTM D5185m      >5      <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel      ppm      ASTM D5185m      >5      <1          Titanium      ppm      ASTM D5185m      >2      0          Silver      ppm      ASTM D5185m      >2      0          Aluminum      ppm      ASTM D5185m      >20      2          Auminum      ppm      ASTM D5185m      >20      2          Copper      ppm      ASTM D5185m      >330      1          Vanadium      ppm      ASTM D5185m      >15      <1	ron	ppm	ASTM D5185m	>120	7		
Titanium      ppm      ASTM D5185m      >2      <1          Silver      ppm      ASTM D5185m      >2      0          Aluminum      ppm      ASTM D5185m      >20      2          Lead      ppm      ASTM D5185m      >40      <1	Chromium	ppm	ASTM D5185m	>20	<1		
Silver      ppm      ASTM D5185m      >2      0          Aluminum      ppm      ASTM D5185m      >20      2          Lead      ppm      ASTM D5185m      >40      <1	Nickel	ppm	ASTM D5185m	>5	<1		
Aluminum      ppm      ASTM D5185m      >20      2          Lead      ppm      ASTM D5185m      >40      <1	Titanium	ppm	ASTM D5185m	>2	<1		
Lead      ppm      ASTM D5185m      >40      <1         Copper      ppm      ASTM D5185m      >330      1          Tin      ppm      ASTM D5185m      >15      <1	Silver	ppm	ASTM D5185m	>2	0		
Copper      ppm      ASTM D5185m      >330      1          Tin      ppm      ASTM D5185m      >15      <1	Aluminum	ppm	ASTM D5185m	>20	2		
Tin      ppm      ASTM D5185m      >15      <1          Vanadium      ppm      ASTM D5185m      <1	_ead	ppm	ASTM D5185m	>40	<1		
Vanadium      ppm      ASTM D5185m	Copper	ppm	ASTM D5185m	>330	1		
Cadmium      ppm      ASTM D5185m      <1          ADDITIVES      method      limit/base      current      history1      history2        Boron      ppm      ASTM D5185m      0      2          Barium      ppm      ASTM D5185m      0      34          Molybdenum      ppm      ASTM D5185m      0      57          Maganese      ppm      ASTM D5185m      0      <1	Гin	ppm	ASTM D5185m	>15	<1		
ADDITIVES      method      limit/base      current      history1      history2        Boron      ppm      ASTM D5185m      0      2          Barium      ppm      ASTM D5185m      0      34          Molybdenum      ppm      ASTM D5185m      60      57          Manganese      ppm      ASTM D5185m      0      <1	Vanadium	ppm	ASTM D5185m		<1		
Boron      ppm      ASTM D5185m      0      2          Barium      ppm      ASTM D5185m      0      34          Molybdenum      ppm      ASTM D5185m      60      57          Manganese      ppm      ASTM D5185m      0      <1          Magnesium      ppm      ASTM D5185m      1010      873          Calcium      ppm      ASTM D5185m      1010      873          Calcium      ppm      ASTM D5185m      1070      993          Calcium      ppm      ASTM D5185m      1150      977          Zinc      ppm      ASTM D5185m      1270      1192          Sulfur      ppm      ASTM D5185m      2060      3316          Solicon      ppm      ASTM D5185m      >25      4          Potassium      ppm      ASTM D5185m	Cadmium	ppm	ASTM D5185m		<1		
Barium      ppm      ASTM D5185m      0      34          Molybdenum      ppm      ASTM D5185m      60      57          Manganese      ppm      ASTM D5185m      0      <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum      ppm      ASTM D5185m      60      57          Manganese      ppm      ASTM D5185m      0      <1	Boron	ppm	ASTM D5185m	0	2		
Manganese      ppm      ASTM D5185m      0      <1          Magnesium      ppm      ASTM D5185m      1010      873          Calcium      ppm      ASTM D5185m      1070      993          Phosphorus      ppm      ASTM D5185m      1150      977          Zinc      ppm      ASTM D5185m      1270      1192          Sulfur      ppm      ASTM D5185m      2060      3316          CONTAMINANTS      method      limit/base      current      history1      history2        Silicon      ppm      ASTM D5185m      >25      4          Sodium      ppm      ASTM D5185m      >20      2          Potassium      ppm      ASTM D5185m      >20      2          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844	Barium	ppm	ASTM D5185m	0	34		
Magnesium      ppm      ASTM D5185m      1010      873          Calcium      ppm      ASTM D5185m      1070      993          Phosphorus      ppm      ASTM D5185m      1150      977          Zinc      ppm      ASTM D5185m      1270      1192          Sulfur      ppm      ASTM D5185m      2060      3316          Sulfur      ppm      ASTM D5185m      2060      3316          Solicon      ppm      ASTM D5185m      225      4          Solicon      ppm      ASTM D5185m      >20      2          Sodium      ppm      ASTM D5185m      >20      2          Potassium      ppm      ASTM D5185m      >20      2          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844	Volybdenum	ppm			57		
Data      ppm      ASTM D5185m      1070      993          Phosphorus      ppm      ASTM D5185m      1150      977          Zinc      ppm      ASTM D5185m      1270      1192          Sulfur      ppm      ASTM D5185m      2060      3316          CONTAMINANTS      method      limit/base      current      history1      history2        Silicon      ppm      ASTM D5185m      >25      4          Sodium      ppm      ASTM D5185m      >20      2          Sodium      ppm      ASTM D5185m      >20      2          Potassium      ppm      ASTM D5185m      >20      2          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >4      0.3          Sulfation      Abs/cm      *ASTM D7624 </td <td>-</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <td></td> <td></td> <td></td>	-	ppm	ASTM D5185m	0			
Phosphorus      ppm      ASTM D5185m      1150      977          Zinc      ppm      ASTM D5185m      1270      1192          Sulfur      ppm      ASTM D5185m      2060      3316          CONTAMINANTS      method      limit/base      current      history1      history2        Silicon      ppm      ASTM D5185m      >25      4          Sodium      ppm      ASTM D5185m      >25      4          Sodium      ppm      ASTM D5185m      >20      2          Potassium      ppm      ASTM D5185m      >20      2          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >4      0.3          Nitration      Abs/cm      *ASTM D7624      >20      7.3          Sulfation      Abs/.1mm      *ASTM D7415	Vagnesium	ppm		1010			
Zinc      ppm      ASTM D5185m      1270      1192          Sulfur      ppm      ASTM D5185m      2060      3316          CONTAMINANTS      method      limit/base      current      history1      history2        Silicon      ppm      ASTM D5185m      >25      4          Sodium      ppm      ASTM D5185m      >25      4          Sodium      ppm      ASTM D5185m      >20      2          Potassium      ppm      ASTM D5185m      >20      2          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >4      0.3          Soot %      %      *ASTM D7624      >20      7.3          Sulfation      Abs/.1mm      *ASTM D7415      >30      18.6          Dxidation      Abs/.1mm      *ASTM D7414		ppm	ASTM D5185m	1070			
SulfurppmASTM D5185m20603316CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>254SodiumppmASTM D5185m>204PotassiumppmASTM D5185m>202INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>40.3NitrationAbs/cm*ASTM D7624>207.3SulfationAbs/cm*ASTM D7624>3018.6FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2514.5		ppm					
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>254SodiumppmASTM D5185m4PotassiumppmASTM D5185m>202INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>40.3NitrationAbs/cm*ASTM D7624>207.3SulfationAbs/cm*ASTM D7624>3018.6FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2514.5	-	ppm					
Silicon      ppm      ASTM D5185m      >25      4          Sodium      ppm      ASTM D5185m      A           Potassium      ppm      ASTM D5185m      >20      2          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >4      0.3          Nitration      Abs/cm      *ASTM D7624      >20      7.3          Sulfation      Abs/.1mm      *ASTM D7415      >30      18.6          FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      14.5			ASTM D5185m	2060	3316		
Sodium      ppm      ASTM D5185m      4          Potassium      ppm      ASTM D5185m      >20      2          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >4      0.3          Nitration      Abs/cm      *ASTM D7844      >20      7.3          Sulfation      Abs/.1mm      *ASTM D7415      >30      18.6          FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      14.5	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium      ppm      ASTM D5185m      >20      2          INFRA-RED      method      limit/base      current      history1      history2        Soot %      %      *ASTM D7844      >4      0.3          Nitration      Abs/cm      *ASTM D7624      >20      7.3          Sulfation      Abs/.1mm      *ASTM D7415      >30      18.6          FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      14.5				>25			
INFRA-RED    method    limit/base    current    history1    history2      Soot %    %    *ASTM D7844    >4    0.3        Nitration    Abs/cm    *ASTM D7624    >20    7.3        Sulfation    Abs/.1mm    *ASTM D7415    >30    18.6        FLUID DEGRADATION    method    limit/base    current    history1    history2      Oxidation    Abs/.1mm    *ASTM D7414    >25    14.5				00			
Soot %      %      *ASTM D7844      >4      0.3          Nitration      Abs/cm      *ASTM D7624      >20      7.3          Sulfation      Abs/.1mm      *ASTM D7415      >30      18.6          FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      14.5		ppm					
Nitration      Abs/cm      *ASTM D7624      >20      7.3          Sulfation      Abs/.1mm      *ASTM D7615      >30      18.6          FLUID DEGRADATION      method      limit/base      current      history1      history2        Oxidation      Abs/.1mm      *ASTM D7414      >25      14.5						history1	history2
Sulfation    Abs/.1mm    *ASTM D7415    >30    18.6        FLUID DEGRADATION    method    limit/base    current    history1    history2      Oxidation    Abs/.1mm    *ASTM D7414    >25    14.5							
FLUID DEGRADATION  method  limit/base  current  history1  history2    Oxidation  Abs/.1mm  *ASTM D7414  >25  14.5							
Oxidation Abs/.1mm *ASTM D7414 >25 14.5	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.6		
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
Base Number (BN)      mg KOH/g      ASTM D2896      9.8      7.8	Oxidation						
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	7.8		

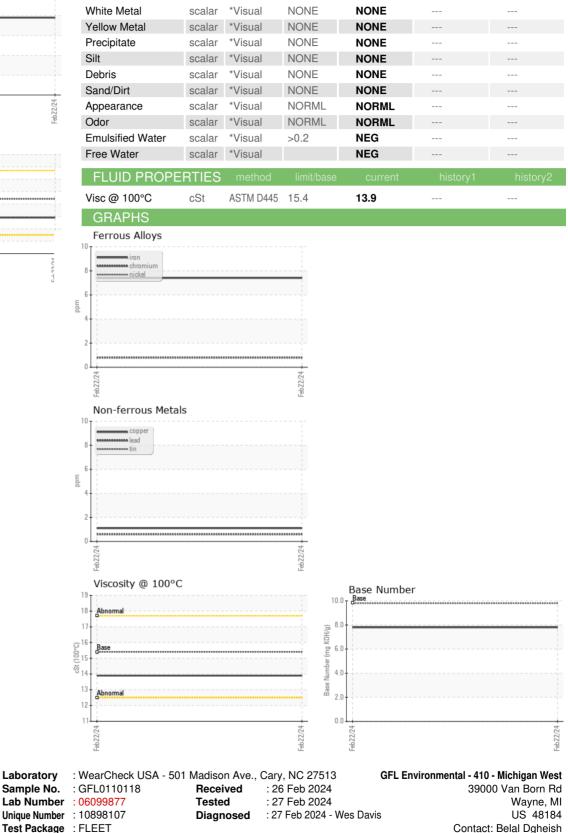


# **OIL ANALYSIS REPORT**

VISUAL







Certificate 12367 Test Package : FLEET 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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