

OIL ANALYSIS REPORT

Sample Rating Trend



KENWORTH 2049 Component

Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

Elevated aluminum (AI) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

Fluid Condition

The condition of the oil is acceptable for the time in service.

Sample DateClient Info24 Nov 2023CMachine AgekmsClient Info255006Oil AgekmsClient Info255006Oil ChangedClient InfoChanged6	history1 200075843 8 Sep 2023 24 24 24 24 24 26 JORMAL IORMAL history1 <1.0 NEG history1 46 <1 <1 0 <1	history2
Sample Date Client Info 24 Nov 2023 Client Info 25500 Client Info Changed Current Client Info Changed Current Client Info Shan Client Info Shan Shan Shan Shan Shan Shan Shan	8 Sep 2023 24 24 24 Changed IORMAL A istory1 <1.0 NEG history1 46 <1 <1 0	 history2 history2
Machine Age kms Client Info 25500 6 Dil Age kms Client Info 25500 6 Dil Changed Client Info Changed 6 Sample Status Client Info Changed 7 CONTAMINATION method limit/base current Fuel WC Method >5 <1.0	24 24 Changed IORMAL <1.0 NEG NEG history1 46 <1 <1 0	 history2 history2
Dil AgekmsClient Info2550066Dil ChangedClient InfoChangedCSample StatusClient InfoNORMALNCONTAMINATIONmethodlimit/basecurrentFuelWC Method>5<1.0	24 Changed IORMAL <1.0 NEG NEG history1 46 <1 <1 <1 0	 history2 history2 history2
Di Changed Sample StatusClient InfoChanged NORMALChanged NORMALContraminationCONTAMINATIONmethodlimit/basecurrentEuelWC Method>5<1.0	Changed IORMAL <1.0 NEG NEG history1 46 <1 <1 0	 history2 history2 history2
Sample StatusNORMALNORMALCONTAMINATIONmethodlimit/basecurrentEuelWC Method>5<1.0	IORMAL history1 <1.0 NEG history1 46 <1 <1 0	 history2 history2
CONTAMINATIONmethodlimit/basecurrentFuelWC Method>5<1.0	history1 <1.0	history2 history2
FuelWC Method>5<1.0WaterWC Method>0.2NEGGlycolWC Method>0.2NEGWEAR METALSmethodlimit/basecurrentIronppmASTM D5185(m)>10024ChromiumppmASTM D5185(m)>20<1	<1.0 NEG NEG history1 46 <1 <1 <1 0	 history2
Water WC Method >0.2 NEG Glycol WC Method >0.2 NEG WEAR METALS method limit/base current Iron ppm ASTM D5185(m) >100 24 Chromium ppm ASTM D5185(m) >20 <1	NEG NEG history1 46 <1 <1 0	 history2
GlycolWC MethodNEGWEAR METALSmethodlimit/basecurrentIronppmASTM D5185(m)>10024ChromiumppmASTM D5185(m)>20<1	NEG history1 46 <1 <1 0	 history2
WEAR METALS method limit/base current Iron ppm ASTM D5185(m) >100 24 Chromium ppm ASTM D5185(m) >20 <1	history1 46 <1 <1 0	history2
ron ppm ASTM D5185(m) >100 24 Chromium ppm ASTM D5185(m) >20 <1	46 <1 <1 0	
ChromiumppmASTM D5185(m)>20<1NickelppmASTM D5185(m)>4<1	<1 <1 0	
NickelppmASTM D5185(m)>4<1FitaniumppmASTM D5185(m)0SilverppmASTM D5185(m)>3<1	<1 0	
Titanium ppm ASTM D5185(m) 0 Silver ppm ASTM D5185(m) >3 <1	0	
Silver ppm ASTM D5185(m) >3 <1 Aluminum ppm ASTM D5185(m) >20 21 Lead ppm ASTM D5185(m) >40 <1		
AluminumppmASTM D5185(m)>2021LeadppmASTM D5185(m)>40<1	-1	
Lead ppm ASTM D5185(m) >40 <1 Copper ppm ASTM D5185(m) >330 17 Tin ppm ASTM D5185(m) >15 <1	< 1	
Copper ppm ASTM D5185(m) >330 17 Tin ppm ASTM D5185(m) >15 <1	9	
Tin ppm ASTM D5185(m) >15 <1 Antimony ppm ASTM D5185(m) 0 0 Vanadium ppm ASTM D5185(m) 0 0 Baryllium ppm ASTM D5185(m) 0 0 Cadmium ppm ASTM D5185(m) 0 0 Cadmium ppm ASTM D5185(m) 0 0 ADDITIVES method limit/base current Boron ppm ASTM D5185(m) 0 <1	2	
AntimonyppmASTM D5185(m)0VanadiumppmASTM D5185(m)0BerylliumppmASTM D5185(m)0CadmiumppmASTM D5185(m)0CadmiumppmASTM D5185(m)0ADDITIVESmethodlimit/basecurrentBoronppmASTM D5185(m)0<1	69	
VanadiumppmASTM D5185(m)0BerylliumppmASTM D5185(m)0CadmiumppmASTM D5185(m)0ADDITIVESmethodlimit/basecurrentBoronppmASTM D5185(m)24BariumppmASTM D5185(m)0<1	<1	
BerylliumppmASTM D5185(m)0CadmiumppmASTM D5185(m)0ADDITIVESmethodlimit/basecurrentBoronppmASTM D5185(m)24BariumppmASTM D5185(m)0<1MolybdenumppmASTM D5185(m)5056ManganeseppmASTM D5185(m)0<1MagnesiumppmASTM D5185(m)950940CalciumppmASTM D5185(m)10501132PhosphorusppmASTM D5185(m)995967	0	
CadmiumppmASTM D5185(m)0ADDITIVESmethodlimit/basecurrentBoronppmASTM D5185(m)24BariumppmASTM D5185(m)0<1	0	
ADDITIVESmethodlimit/basecurrentBoronppmASTM D5185(m)24BariumppmASTM D5185(m)0<1	0	
Boron ppm ASTM D5185(m) 2 4 Barium ppm ASTM D5185(m) 0 <1	0	
Barium ppm ASTM D5185(m) 0 <1 Molybdenum ppm ASTM D5185(m) 50 56 Manganese ppm ASTM D5185(m) 0 <1	history1	history2
Molybdenum ppm ASTM D5185(m) 50 56 Manganese ppm ASTM D5185(m) 0 <1	32	
Manganese ppm ASTM D5185(m) 0 <1 Magnesium ppm ASTM D5185(m) 950 940 Calcium ppm ASTM D5185(m) 1050 1132 Phosphorus ppm ASTM D5185(m) 995 967	1	
Magnesium ppm ASTM D5185(m) 950 940 Calcium ppm ASTM D5185(m) 1050 1132 Phosphorus ppm ASTM D5185(m) 995 967	21	
Calcium ppm ASTM D5185(m) 1 050 1132 Phosphorus ppm ASTM D5185(m) 995 967	1	
Phosphorus ppm ASTM D5185(m) 995 967	774	
	1352	
Zinc ppm ASTM D5185(m) 1180 1191	807	
	922	
Sulfur ppm ASTM D5185(m) 2600 2384	2434	
Lithium ppm ASTM D5185(m) <1	<1	
CONTAMINANTS method limit/base current		history2
Silicon ppm ASTM D5185(m) >25 6	history1	
Sodium ppm ASTM D5185(m) 2	12	
Potassium ppm ASTM D5185(m) >20 51	12 4	
INFRA-RED method limit/base current	12	
Soot %	12 4	
Nitration Abs/cm ASTM D7624* >20 9.4	12 4 34 history1 0	
Sulfation Abs/.1mm ASTM D7415* >30 20.7	12 4 34 history1	 history2



100 95

> 90 85

75 70

60

100

95 90

70

60 Sep8/23

Ba

Abno 65

Abn 65

ep 8/23

cSt (40°C) 80 Ba

Viscosity @ 40°C

OIL ANALYSIS REPORT

FLUID DEGRADATION method Oxidation Abs/.1mm ASTM D7414* >25 16.9 16.1 VISUAL **Emulsified Water** Visual* >0.2 NEG NEG scalar Free Water NEG scalar Visual* NEG FLUID PROPERTIES Vov24/23 Visc @ 40°C cSt ASTM D7279(m) 80.1 77.4 79.5 cSt ASTM D7279(m) Visc @ 100°C 12.00 11.5 11.8 Viscosity @ 40°C Viscosity Index (VI) Scale ASTM D2270* 144 140 142 GRAPHS Iron (ppm) Lead (ppm) 100 200 80 150 60 ngo 100 Δſ 50 20 Ο Vov24/23 Aluminum (ppm) Chromium (ppm) 50 40 4(30 30 Abnorma 10 0 0 Vov24/23 Copper (ppm) Silicon (ppm) 400 80 300 E 40 <u>ل</u> 200 Ab 100 20 e Viscosity @ 100°C Soot % 6 (5.0 14 () 10°0) 12 4.0 53.0 . تق 11 2.0 10 1.0 0.0 9 Nov24/23 iei i **B FREGEAU & FILS INC** Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 CALA Sample No. : PC0075841 Received : 28 Nov 2023 402 RUE ST DENIS Lab Number : 02599254 Diagnosed : 28 Nov 2023 ST ALEXANDRE, QC ISO 17025:2017 Accredited Diagnostician : Wes Davis : 5684334 CA J0J 1S0 Unique Number Laboratory Test Package : MOB 1 (Additional Tests: KV40, VI) Contact: Steve M. To discuss this sample report, contact Customer Service at 1-800-268-2131. stevem@bfregeau.com Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T:

Validity of results and interpretation are based on the sample and information as supplied.

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