

## **OIL ANALYSIS REPORT**

# Pillen Family Farms MILTK45

Component **Diesel Engine DIESEL ENGINE OIL SAE 40 (--- GAL)** 

#### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

#### Wear

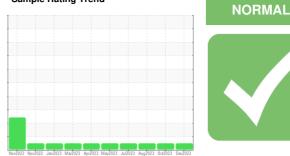
All component wear rates are normal.

### 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 Rating Trend

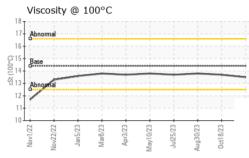


SAMPLE INFORM	<b>IATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		SBP0006166	SBP0006228	SBP0002416
Sample Date		Client Info		14 Dec 2023	18 Oct 2023	30 Aug 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
-				-	-	-
CONTAMINATIO	N	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	11	8	5
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	<1
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	2	9
Lead	ppm	ASTM D5185m	>40	1	<1	0
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
	pp			•		-
ADDITIVES	pp	method	limit/base	current	history1	history2
	ppm		limit/base 250	-		-
ADDITIVES		method		current	history1	history2
ADDITIVES Boron Barium	ppm	method ASTM D5185m	250	current	history1 1	history2 2
ADDITIVES Boron	ppm ppm	method ASTM D5185m ASTM D5185m	250 10	current <1 0	history1 1 3	history2 2 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	250 10	current <1 0 61	history1 1 3 64	history2 2 0 61
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	<pre>current &lt;1 0 61 &lt;1</pre>	history1 1 3 64 0	history2 2 0 61 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	<pre>current &lt;1 0 61 &lt;1 913</pre>	history1 1 3 64 0 957	history2 2 0 61 <1 1000
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	current <1 0 61 <1 913 994	history1 1 3 64 0 957 1124	history2 2 0 61 <1 1000 1085
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	current           <1           0           61           <1           913           994           1011	history1 1 3 64 0 957 1124 1013	history2 2 0 61 <1 1000 1085 1111
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	current           <1           0           61           <1           913           994           1011           1170	history1 1 3 64 0 957 1124 1013 1274	history2 2 0 61 <1 1000 1085 1111 1350
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	250 10 100 450 3000 1150 1350 4250	Current <1 0 61 <1 913 994 1011 1170 2809	history1	history2 2 0 61 <1 1000 1085 1111 1350 3295
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base	current           <1           0           61           <1           913           994           1011           1170           2809           current	history1 1 3 64 0 957 1124 1013 1274 3460 history1	history2 2 0 61 <1 1000 1085 1111 1350 3295 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	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 ASTM D5185m <b>method</b> ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <i>limit/base</i> >25	current           <1           0           61           <1           913           994           1011           1170           2809           current           3	history1         1         3         64         0         957         1124         1013         1274         3460         history1         5	history2           2           0           61           <1           1000           1085           1111           1350           3295           history2           4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	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 <b>method</b> ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216	current           <1           0           61           <1           913           994           1011           1170           2809           current           3           3           3	history1         1         3         64         0         957         1124         1013         1274         3460         history1         5         0	history2           2           0           61           <1           1000           1085           1111           1350           3295           history2           4           2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216 >20 <b>limit/base</b>	current         <1         0         61         <1         913         994         1011         1170         2809         current         3         3         2         current	history1         1         3         64         0         957         1124         1013         1274         3460         history1         5         0         8         history1	history2         2         0         61         <1         1000         1085         1111         1350         3295         history2         4         2         25         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216 >216 >20 <b>limit/base</b>	current         <1         0         61         <1         913         994         1011         1170         2809         current         3         2         current         0         0         0         0         0         0         0.6	history1         1         3         64         0         957         1124         1013         1274         3460         history1         5         0         8         history1         0.5	history2         2         0         61         <1         1000         1085         1111         1350         3295         history2         4         2         25         history2         0.5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216 >20 <b>limit/base</b>	current         <1         0         61         <1         913         994         1011         1170         2809         current         3         3         2         current	history1         1         3         64         0         957         1124         1013         1274         3460         history1         5         0         8         history1	history2         2         0         61         <1         1000         1085         1111         1350         3295         history2         4         2         25         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >216 >20 <b>imit/base</b> >3 >20	current         <1         0         61         <1         913         994         1011         1170         2809         current         3         2         current         0         0         0         0         0         7         0.6         7.1	history1         1         3         64         0         957         1124         1013         1274         3460         history1         5         0         8         history1         0.5         7.0         19.1	history2         2         0         61         <1         1000         1085         1111         1350         3295         history2         4         2         25         history2         0.5         6.7         18.9
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D7844           *ASTM D7624           *ASTM D7415           method	250 10 100 450 3000 1150 1350 4250 <b>iimit/base</b> >25 >216 >20 <b>iimit/base</b> >3 >20 >30	current         <1         0         61         <1         913         994         1011         1170         2809         current         3         3         2         current         0.6         7.1         19.6         current	history1         1         3         64         0         957         1124         1013         1274         3460         history1         5         0         8         history1         0.5         7.0         19.1	history2         2         0         61         <1         1000         1085         1111         1350         3295         history2         4         2         25         history2         0.5         6.7         18.9         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >216 >20 <b>imit/base</b> >3 >20	current         <1         0         61         <1         913         994         1011         1170         2809         current         3         2         current         0.6         7.1         19.6	history1         1         3         64         0         957         1124         1013         1274         3460         history1         5         0         8         history1         0.5         7.0         19.1	history2         2         0         61         <1         1000         1085         1111         1350         3295         history2         4         2         25         history2         0.5         6.7         18.9



## **OIL ANALYSIS REPORT**

Base Number 14.0 Abnorma Base Number (mg KOH/g) 0.8 0.0 0.9 0.9 0.0 2.0 0.0 Nov1/22 ov22/22 Jul25/23 Dec14/23 -Apr3/23 May10/23 an5/23 Mar8/23 vug30/23 Oct18/23



VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPER	TIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	13.5	13.7	13.8
GRAPHS						

Ferrous Alloys

