Client: **9999800**

BRENT THORKELSON
BOX 41, SITE 2 RR1,
MILLARVILLE, AB
ATTN: BRENT THORKELSON

Unit #: **MINI COOPER 1.6L**
Unit Location:
Component: **ENGINE**
Location:
Serial #: **1.6 L 4 CYLINDER**
Make:
Model: **MINI JOHN COOPERS**
OAS #:

Date analyzed: **12/21/15**
Work order: **15C112699**
Oil brand & grade: **MILLERS 5W30 (BRENT)**
Client Ref #:

AGAT Laboratories
Equipment Reliability and Lubricants Testing Services
3650 21st Street N.E., Calgary, AB, T2E6V6
Phone:(403)299-2000 Fax:(403)299-2105

LEGEND - LC -Lower Critical | LR -Lower Reportable | UR -Upper Reportable | UC -Upper Critical | * *Ital* -Custom Limit

UNIT DATA / SPECTROGRAPHIC ANALYSIS (PPM)

Sample#	Date Sampled	Component Service	Oil Service	Oil Changed	Al Aluminum	Cr Chromium	Cu Copper	Fe Iron	Sn Tin	Pb Lead	Si Silicon	Mo Molybdenum	Ni Nickel	Ag Silver	K Potassium	Na Sodium	B Boron	Ba Barium	Ca Calcium	Mg Magnesium	Mn Manganese	P Phosphorus	Zn Zinc
New Oil					**0**	**0**	**0**	**0**	**5**	**0**	**10**	797	0	0	0	8	62	0	2747	15	0	1457	1080
B501121	11/15/15		10000 kms	N	**4**	**1**	**5**	**34 UR**	**3**	**0**	**28**	799	1	0	2	12	42	0	2580	16	4	1360	1030

PHYSICAL PROPERTIES / ISO CLEANLINESS / OIL DEGRADATION

Sample#	Glycol	H2O	% Fuel	Viscosity 40°C	Viscosity 100°C	% Solids	KF	°C Flash Point	Micron size 4	Micron size 6	Micron size 14	ISO Code	% SOOT	abs/cm-1 OXD	abs/cm-1 NOX	abs/cm-1 COX	abs/cm-1 SO4	abs/cm-1 ZDDP	TAN	TBN	Min. RPVOT
New Oil				55.5	9.8														3.70	10.8	
B501121	N	N		51.7	9.3								0.0	16	25	25	7	0		6.5	

WEAR CONTROL CHART

Sample#	0	30	60	90	120	150
B501121			48			

COMMENTS

Comments:

REFER TO REVERSE FOR QUALITY CONTROL REPORT, EXPLANATION OF VARIANCE AND POSSIBLE CAUSES.

Should you wish to provide feedback to AGAT Laboratories, please access our Customer review form at www.agatlabs.com/review.htm. This input is extremely important to us because your well being and satisfaction is our number one priority.

* COMPONENT SERIAL NUMBER MUST BE GIVEN TO GENERATE HISTORY. Bold faced elements are included in Wear Control Chart.

Client: **9999800**

BRENT THORKELSON
BOX 41, SITE 2 RR1,

MILLARVILLE, AB

ATTN: BRENT THORKELSON

Date analyzed: **12/21/15**

Work order: **15C112699**

Oil brand & grade: **MILLERS 5W30 (BRENT)**

Client Ref #:

Unit No.: **MINI COOPER 1.6L**

Unit Location:

Component: **ENGINE**

Location:

Serial No.: **1.6 L 4 CYLINDER**

Make:

Model: **MINI JOHN COOPERS**

OAS No.:

AGAT Laboratories

Quality Control Report

Flagged Result	Possible Causes	Significance of Result / Recommended Action
Fe - Iron	Iron is the base element in steel and is therefore present in many lubricated components (liners, piston rings, pistons, rockers arms, cylinders, shafts, gears, valve bridges, oil pump rolling element bearings, housings and cases). Iron is also present in rust and may indicate water contamination.	Higher than expected iron levels may indicate wear or contamination. Identify and evaluate the source. Check for signs of rust, scale and corrosion. Consider filtering or changing the oil.

Client: 9999800

BRENT THORKELSON
BOX 41, SITE 2 RR1,

MILLARVILLE, AB

ATTN: BRENT THORKELSON

Unit #: **MINI COOPER 1.6L**
Unit Location:
Component: **ENGINE**
Location:
Serial #: **1.6 L 4 CYLINDER**
Make:
Model: **MINI JOHN COOPERS**

Oil brand & grade: MILLERS 5W30 (BRENT)
Sample #: **C-660178**
Date Sampled: 12/21/15
Date Analyzed: 12/21/15
Work order: 15C112699
Client Ref #:

AGAT Laboratories

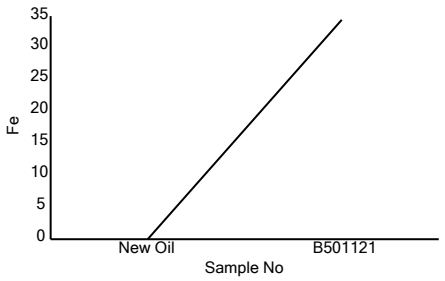
Sample Status and Trending

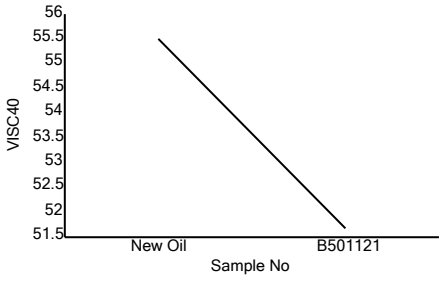
Sample Rank: **Your Sample Rank:** 2

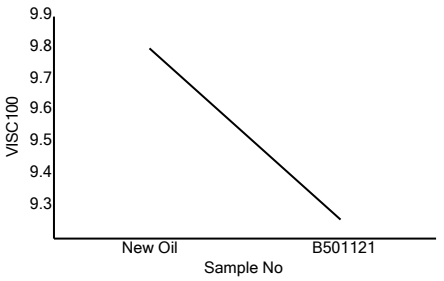
Rankings: 0-3 Normal, 4-6 Reportable, 7-10 Critical

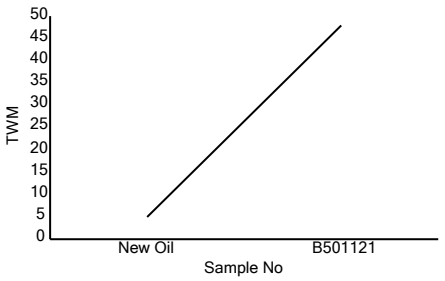
Normal **Reportable** **Critical**

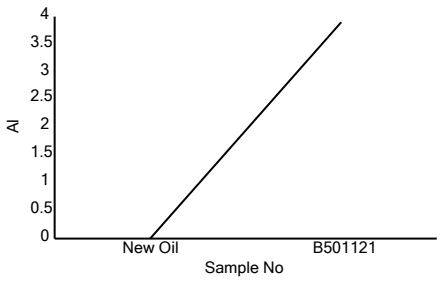
Trend Graphs

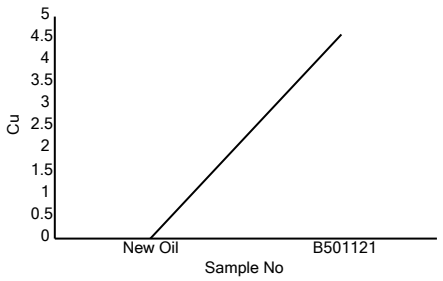


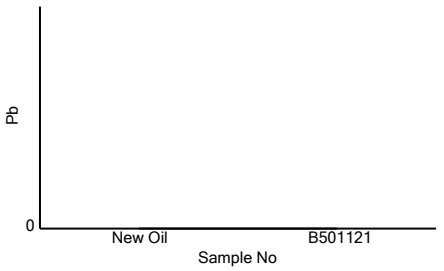


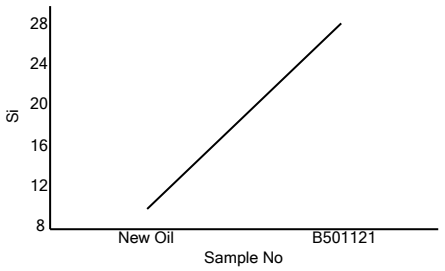












Client: **9999800**

BRENT THORKELSON
BOX 41, SITE 2 RR1,
MILLARVILLE, AB
ATTN: BRENT THORKELSON

Unit #: **PORSCHE 3.6L**
Unit Location:
Component: **ENGINE**
Location:
Serial #:
Make: **PORSCHE**
Model: **GT3 3.6L METZ**
OAS #:

Date analyzed: **12/21/15**
Work order: **15C112699**
Oil brand & grade: **MILLERS 0W40 (BRENT)**
Client Ref #:

AGAT Laboratories
Equipment Reliability and Lubricants Testing Services
3650 21st Street N.E., Calgary, AB, T2E6V6
Phone:(403)299-2000 Fax:(403)299-2105

LEGEND - LC -Lower Critical | LR -Lower Reportable | UR -Upper Reportable | UC -Upper Critical | * *Ital* -Custom Limit

UNIT DATA

Sample#	Date Sampled	Component Service	Oil Service	Oil Changed
New Oil				
B501128	11/15/15		7500 kms	Y

SPECTROGRAPHIC ANALYSIS (PPM)

Sample#	Al Aluminum	Cr Chromium	Cu Copper	Fe Iron	Sn Tin	Pb Lead	Si Silicon	Mo Molybdenum	Ni Nickel	Ag Silver	K Potassium	Na Sodium	B Boron	Ba Barium	Ca Calcium	Mg Magnesium	Mn Manganese	P Phosphorus	Zn Zinc
New Oil	**0**	**0**	**0**	**0**	**5**	**0**	**13**	821	0	0	0	9	65	0	2853	15	0	1527	1150
B501128	**4**	**1**	**15**	**7**	**3**	**0**	**16**	690	1	0	2	10	58	0	2370	13	0	1260	960

PHYSICAL PROPERTIES

Sample#	Glycol	H2O	% Fuel	Viscosity 40°C	Viscosity 100°C	% Solids	KF	°C Flash Point
New Oil				81.2	13.0			
B501128	N	N	3.6	54.0 LC	10.1 LC			

ISO CLEANLINESS

Sample#	Micron size 4	6	14	ISO Code

OIL DEGRADATION

Sample#	% SOOT	abs/cm-1 OXD	NOX	COX	SO4	ZDDP	TAN	TBN	Min. RPVOT
New Oil							3.77	11.3	
B501128	0.0	1	11	16	6	0		8.7	

WEAR CONTROL CHART

COMMENTS

Comments:

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* COMPONENT SERIAL NUMBER MUST BE GIVEN TO GENERATE HISTORY. Bold faced elements are included in Wear Control Chart.

Client: **9999800**

BRENT THORKELSON
BOX 41, SITE 2 RR1,

MILLARVILLE, AB

ATTN: BRENT THORKELSON

Date analyzed: **12/21/15**

Work order: **15C112699**

Oil brand & grade: **MILLERS 0W40 (BRENT)**

Client Ref #:

Unit No.: **PORSCHE 3.6L**

Unit Location:

Component: **ENGINE**

Location:

Serial No.:

Make: **PORSCHE**

Model: **GT3 3.6L METZ**

OAS No.:

AGAT Laboratories

Quality Control Report

Flagged Result	Possible Causes	Significance of Result / Recommended Action
Fuel - Fuel Dilution	Fuel dilution may be due to excessive blow-by, excessive idling, cold weather starting, faulty injector, leaking fuel transfer pump seals or stop and go driving. Fuel dilution may be correlated with decreased oil viscosity.	Fuel dilution indicates contamination of the sample with fuel. Identify and evaluate the source. Consider changing the oil.
VISC100 - Viscosity at 100 C	Lower than expected viscosity may be due to contamination with lower grade oil, fuel or degradation due to shearing or extended drain intervals.	Lower than expected viscosity may indicate contamination or degradation of the oil. Verify the identity and grade of the oil in use. Identify and evaluate the cause. Consider changing the oil.
VISC40 - Viscosity at 40 C	Lower than expected viscosity may be due to contamination with lower grade oil, fuel or degradation due to shearing or extended drain intervals.	Lower than expected viscosity may indicate contamination or degradation of the oil. Verify the identity and grade of the oil in use. Identify and evaluate the cause. Consider changing the oil.

Client: 9999800

BRENT THORKELSON
BOX 41, SITE 2 RR1,

MILLARVILLE, AB

ATTN: BRENT THORKELSON

Unit #: **PORSCHE 3.6L**
Unit Location:
Component: **ENGINE**
Location:
Serial #:
Make: **PORSCHE**
Model: **GT3 3.6L METZ**

Oil brand & grade: MILLERS 0W40 (BRENT)
Sample #: **C-660177**
Date Sampled: 12/21/15
Date Analyzed: 12/21/15
Work order: 15C112699
Client Ref #:

AGAT Laboratories

Sample Status and Trending

Sample Rank: **Your Sample Rank:** 9

Rankings: 0-3 Normal, 4-6 Reportable, 7-10 Critical

Normal **Reportable** **Critical**

Trend Graphs