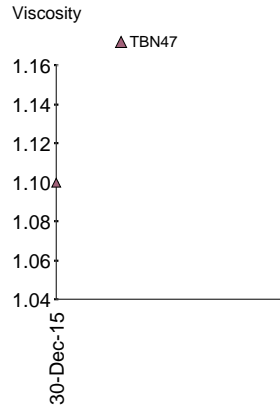


Account Number : 125386
 Account Name : CITYSERVICEVALCON
 Date : 16-Feb-2016
 Signum Number : 40713554

Description : mercedes
 Component : Engine
 Manufacturer : MERCEDES
 Model : ML 350
 Registered Lubricant : MOBIL 1 ESP FORMULA M 5W-40

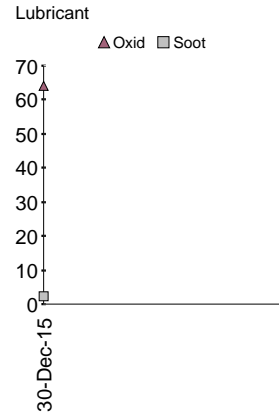
Please refer to next page for complete comments.

Sample Data	
Sample ID	6043523030
Date Sampled	30-Dec-2015
Date Reported	16-Feb-2016
Brand	MOBIL
Lubricant Tested	M1ESPM5W40
Equip. Miles	82000
Oil Miles	12500
Resv. Temp	
Make-Up	
Oil Changed	N
Filter Changed	N



Sample Data	
Sample ID	6043523030
Date Sampled	30-Dec-2015

Lubricant Data	
Contamination	Normal
Equipment Rating	Normal
Oil Rating	*Alert
Visc@100C (cst)	+
Oxidation (Ab/cm)	*64
PQ Index	12
Soot (Wt%)	2.16
TBN (mg KOH/g)	*1.1
Water (Vol%)	NotDetected



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ACTION REQUIRED; EXCESSIVE (HIGH) OXIDATION: Identify and correct causes of oxidation. - Oil oxidation is the chemical degradation of the lubricant at high temperatures. - Possible sources of oxidation include: 1. overloading; lean mixture; 2. improper timing; 3. pre-ignition or detonation; 4. adding or mixing lubricants of different formulations may also result in false oxidation values; 5. defects in cooling system. - Defects in the cooling system may also result in high temperatures due to: 1. scale; 2. faulty thermostat; 3. faulty pressure cap; 4. clogged radiator; 5. faulty water pump; 6. faulty shutters or collapsed hoses.

ACTION REQUIRED; LOW TBN: Identify and correct causes of low TBN. - Possible sources of low TBN include: 1. poor combustion; excessive blow-by; low rate of oil make-up; 2. dilution/contamination with a lower TBN oil; 3. high water content; engine temperatures too low; and over extended oil service; 4. operating with a high sulfur fuel; 5. low TBN may indicate the oil is acidic and has very little alkalinity reserve left; 6. confirm product is from proper source (i.e. engine versus transmission). - Utilize the Signum Oil Analysis on-site TBN Test Kit or resample to confirm condition or proper repair. Please note that on-site test kits are available in the Americas only.

ACTION REQUIRED; OIL OR OPERATING CONDITION UNSATISFACTORY: Some test results exceed control limits. - Resample to confirm oil condition. - If condition is confirmed, take positive corrective action.

ACTION REQUIRED; INSUFFICIENT SAMPLE VOLUME: The sample bottle contained an insufficient lubricant quantity OR the wrong size bottle was used, which prevented the laboratory from doing a complete analysis. - The laboratory performed as many tests as the sample volume would allow. - As a result, you may notice that some test results were not provided. - Resubmit a full lubricant sample bottle for complete analysis.

Account Number : 125386
Account Name : CITYSERVICEVALCON

Date : 16-Feb-2016
Signum Number : 40713554

1 big sky

Alert

Description : mercedes
Component : Engine
Manufacturer : MERCEDES
Model : ML 350
Registered Lubricant : MOBIL 1 ESP FORMULA M 5W-40

ACTION REQUIRED; EXCESSIVE VISCOSITY or CONTAMINATION: The condition of your sample was either too viscous or contaminated to perform selected tests . - Resample and visually examine the sample prior to shipping. - If a viscosity result could not be obtained, it was most likely due to contamination and the excessive level of insolubles (ex. soot, glycol or other insoluble contaminants in an engine). - Determine if sample is representative and from a correct source and not from a filter, tank or crankcase bottom.

Normal

+ Caution

* Alert