

**#LUE100 – OIL ANALYSIS KITS**

# Tech Bulletin

**Application**

Depending on the application and use, an oil will have additives added to protect the lubricant properties and the equipment.

Base (alkaline) additives are in the oil to neutralize acidic products. The additives have a limit to their ability neutralize acids. Over use of a lubricant, i.e. extended oil drains, will cause the base additives to lose their ability to neutralize acids.

New oils start with the highest TBN they will possess. Depending on the equipment, application and operation lubricants are developed with different amounts of these additives.

Measuring the TBN is very important when extending oil drain intervals. The levels of the TBN will indicate the capability of the additives to neutralize the acids.

When the TBN is reduced to 1/2 of its original value an oil change is advisable.

Calcium (Ca) and Magnesium (Mg) are the additives blended with oil to neutralize acids and acid by-products. Calcium and Magnesium levels indicate the amount of these additives in new oil. These levels will remain in the oil even though they can no longer neutralize acids. TBN testing is the only way to determine if these additives remain effective.

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**Causes**  
(of low TBN readings)

- Incorrect Oil in Use
- Fuel Sulfur
- Overextended ODI's
- Blow-by
- Acid Build Up
- Nitration
- Over Heating
- Improper Operations

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**Effects**

- High Acid Levels
- Corrosion
- Increased Repair Expense
- Additive Depletion
- Shortened Oil Life
- Improper Operations

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**Maintenance Actions**

- Ensure Low Sulfur Fuel is Used
- Verify TBN of New Product
- Add Fresh Oil, if Possible
- Repair/Replace Worn or Defective Engine Parts
- Use Correct Lubricants
- Change Oil
- Test Fuel Quality
- Shorten Oil Change Intervals