

## Base Number

### Definition:

**Base Number** measures a lubricant's alkaline reserve, or ability to neutralize acid. When Acid Number and Base Number approach the same number, the oil should be changed or "sweetened" (new oil should be added).

### Standard Test Method Used

[mod. ASTM D4739](#)

### Reporting Measurement:

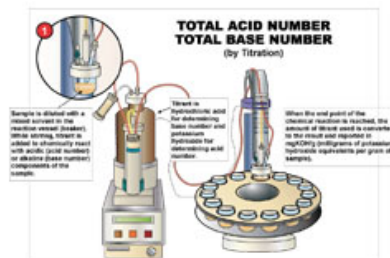
mg KOH/g (milligrams potassium hydroxide per gram of sample)

### Amount of Sample Needed:

4g

### Test Limitation:

Used for used engine oils only to determine safe extension of drain intervals. Contamination by coolant can artificially raise TBN



Historically, the characterisation of fresh and used diesel engine lubricants has been based on a limited number of analytical techniques. One of the most important methods of analysis has been total base number (TBN) measurement. Although TBN measurements are informative, easy, and quick, it can be misleading to base the judgement of an oil's performance solely on one criterion.

It is hypothesised that some detergents do not effectively neutralise all acidic species present in the lubricant, thereby reserving their own base, while in fact the oil may no longer provide sufficient protection against bearing corrosion. This hypothesis is supported by bench and engine test data. It is recommended that, where time and cost permit, wear metals content, oxidation, soot content, and viscosity should also be evaluated.