

# Atomic Absorption Method Guide

## Pb in lubricating oils

### Key Words

- Lubricating Oils
- Mineral Oils
- Lead
- Flame
- Atomic Absorption

### Principle

The sample is dissolved in white spirit, and lead is determined by flame atomic absorption spectrometry using an air-acetylene flame.

### Reagents

**White spirit (BS:245)** (Spectrosol grade or equivalent)

**Ionisation suppressant** (2500mg/L, e.g. sodium or potassium as naphthenate or sulphonate prepared in white spirit)

**Lead master standard** (500mg/L, oil-soluble organometallic standard solution or equivalent)

### Working standards

Weigh 0, 0.1, 0.6 and 1.2g of the lead master standard into a series of 100mL volumetric flasks and dilute to volume with white spirit. The working standards will contain 0, 0.5, 3.0 and 6.0mg/L of lead.

### Sample Preparation

Weigh up to 10.000g of oil into a 100mL volumetric flask and dilute to volume with white spirit. Ensure the sample is fully dissolved. For higher concentrations, dissolve a smaller quantity of oil prepared in the same way.

### Instrument Parameters

Figure 1 Instrument parameters

### Results

Sample	Used gear oil
Lead found (% m/m)	0.0576
Independent analysis (%m/m)	0.0530

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*The method of sample treatment described in this publication should be performed only by a competent chemist or technician trained in the use of safe techniques in analytical chemistry. Users should acquaint themselves with particular hazards which may be incurred when toxic materials are being analysed and handled in the instruments, and the instrument must be used in accordance with the operating and safety instructions given in the Operators manual.*

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