

# MGA-1000

Zeeman atomic absorption spectrometer



## Direct determination of low arsenic concentrations in light petroleum products by GFAAS technique

### INTRODUCTION

Light petroleum fractions containing C4-C15 hydrocarbon compounds are used as a feedstock for petrochemical processes that can be severely affected by trace amounts of arsenic. A simple graphite furnace atomic absorption spectroscopy (GFAAS) procedure for arsenic determination at ppb levels in naphtha, gasoline, gas condensate, and similar products is proposed.



### MEASUREMENT METHOD

Prior analysis the sample is preserved by adding organic solvent and nitric acid solution to form stable microemulsion. An aliquot of the microemulsion is then injected directly to the graphite tube of GFAAS MGA-1000 together with appropriate matrix modifiers, evaporated, and atomized according to the preset temperature program.

### HIGHLIGHTS

- Direct determination of arsenic in light oil fractions at levels from 5  $\mu\text{g/L}$  and higher
- Measurement without hydride generation technique
- Calibration with aqueous standard solutions instead of expensive organo-arsenic calibration standards
- No need for organometallic matrix modifiers
- No oxygen and no combustible gases needed
- Simplified routine work in the lab

### EQUIPMENT AND REAGENTS

- MGA-1000 graphite furnace atomic absorption spectrometer including water-cooling system, electrodeless discharge lamp (As), and graphite tubes
- High purity argon (99.99%)
- Standard inorganic arsenic stock solution (100 mg/L)
- Triphenylarsine, 97% (for method validation)

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