

**Method Number: TM 053**

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**Method Summary****Determination of Bulk Gas Composition****Scope and Range**

Gas analysis is used widely throughout the chemical industry. Environmentally it is mainly used to investigate gas emissions from boreholes, trial pits, spill troughs and landfill sites. This method measures the composition of methane, carbon monoxide, carbon dioxide, oxygen, nitrogen and hydrogen by Gas Chromatography.

The limits of detection are:

Hydrogen	0.5% v/v
Oxygen	0.5% v/v
Nitrogen	0.5% v/v
Carbon Monoxide	0.05% v/v
Methane	0.05% v/v
Carbon Dioxide	0.05% v/v
Hydrogen Sulphide	0.0001% v/v

**References**

ASTM D 1945-91 Standard test method for Analysis of Natural Gas by Gas Chromatography

**Principle**

Samples are supplied in tedlar bags, Greshams tubes and Silonite canisters, The gas components are separated by Gas Chromatography, detected using a Thermal Conductivity Detector (TCD) and identified from their retention times. The hydrogen sulphide analysis is carried out by a hand-held G5000 Gas Analyser.

**Interferences**

Thermal Conductivity Detection is a non-specific means of detection. Any substances with thermal conductivities different to that of the carrier gas that co-elute from the chromatographic column with any of the components of will interfere with this determination.