Industrial Methanol Analysis - For Biotech Applications

A rapid high performance methanol analysis based on the direct reaction with the enzyme Alcohol Oxidase. Intended for a range of industrial applications including fermentation processes using methanol as a carbon source.

Bulletin Reference	TB – Methanol – Industrial – GMRD-125 – Biotech – V.01
Order Code(s)	GMRD-125, GMRD-125(J), GMRD-125SJ
Reagent Kit Size(s)	50 ml (70 analyser cycles), 8 x 50 ml (8 x 70 analyser cycles), 4 x 175 ml (4 x 250 analyser cycles)
Instruments	All AM5, GL6 and GM8 Series analysers
Samples	Culture fermentation extracts
Sample Volume	5 µl
Analysis Time	20 seconds
Working Range	ca. 0 – 500 ppm (0 - 500 mg/L, 0.00 - 0.05 % W/V) (direct injection); ca. 0 – 4 % W/V (aqueous dilution)
Reagent Stability	Shelf-life unopened: 6 months stored at 0 - 5°C. Shelf-life reconstituted: AOD/buffer reagent, ca. 5 days stored at 0 - 5°C.
Note	No sample pre-treatment is normally necessary. Sample opacity or turbidity presents no problem since the detection method is electrochemical rather than spectrophotometric.

Principle

In the presence of molecular oxygen, methanol is determined by enzymatic oxidation with buffered alcohol oxidase (AOD) according to the equation,

$$\text{Methanol} + O_2 \xrightarrow{\textit{Alcohol Oxidase (AOD)}} \text{Formaldehyde} + H_2O_2$$

Under controlled conditions, the rate of oxygen uptake from the buffer is directly proportional to methanol concentration.