Industrial Methanol Analysis – For Velcorin® 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 the monitoring of dimethyl dicarbonate (DMDC) dosage as preservative in the beverage industry.

Bulletin Reference	TB – USA – Methanol – Industrial – GMRD-125 – Velcorin – V.01
Order Code(s)	GMRD-125, GMRD-125(J), GMRD-125SJ
Reagent Kit Size(s)	50 ml (70 analyzer cycles), 8 x 50 ml (8 x 70 analyzer cycles), 4 x 175 ml (4 x 250 analyzer cycles)
Instruments	All AM5, GL6 and GM8 Series analyzers
Samples	Soft drinks, colas, teas and other aqueous products
Sample Volume	10 µl
Analysis Time	20 seconds
Working Range	ca. 0 - 500 ppm (0 - 500 mg/L, 0.00 - 0.05 % W/V) (Direct Injection for DMDC monitoring)
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	Some juices and other beverages contain a low background level of methanol which can be determined before dosage with DMDC. No sample pre-treatment is normally necessary except carbonated products which should be degassed in the normal way.

Principle

Dimethyl dicarbonate (Velcorin®) hydrolyses after a few hours to breakdown products carbon dioxide and methanol,

$$DMDC + H_2O \longrightarrow Methanol + CO_2$$

The methanol concentration is determined by enzymatic oxidation with buffered alcohol oxidase (AOD) according to the equation,

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

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