

A simple two-step enzymatic assay for sucrose in aqueous solutions or extracts.

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| Bulletin Reference  | TB – Sucrose – Industrial – GMRD-105 – V.01   |
| Order Code(s)       | GMRD-105 (For GM8), GMRD-105S (For GM10)  |
| Reagent Kit Size(s) | 80 ml (120 analyser cycles) – GMRD-105<br>250 ml (120 analyser cycles) – GMRD-105S  |
| Instruments         | All GM8 and GM10 series analysers<br>N.B.: Sucrose analysis may also be performed via the glucose assay on GL6 analysers.   |
| Samples             | Aqueous solutions and extracts.   |
| Sample Volume       | 10 µl   |
| Analysis Time       | 20 seconds (from injection)   |
| Working Range       | 0.5 - 20 %W/V (GM8, GL6);<br>0.5 - 20 %W/V (GM10)   |
| Reagent Stability   | Shelf-life unopened: 9 months stored at 0 - 5°C.<br>Shelf-life reconstituted: Invertase, 3 - 4 days stored at 0 - 5°C.<br>Aliquots may be frozen for extended life.   |
| Note                | 4 vials of Invertase (β-fructosidase) are provided to maximise kit life.<br>Sample opacity or turbidity presents no problem since the detection method is electrochemical rather than spectrophotometric.<br>Endogenous glucose, if present, should be determined as a sample 'blank', i.e. extract diluted pro-rata in water instead of β-fructosidase.<br>Incomplete hydrolysis may take place for sucrose concentrations greater than 10 %W/V.<br>For greater accuracy at these levels repeat hydrolysis using a 5 µl sample and scale results proportionally. |

## Principle

i) Sucrose, a disaccharide, is stoichiometrically hydrolysed by Invertase (β-fructosidase) to α-D-glucose and fructose in a simple pre-reaction. Under the special buffer conditions used, mutarotation to β-D-glucose rapidly occurs,



ii) In the presence of molecular oxygen, β-D-glucose is oxidised by the enzyme glucose oxidase (GOD) to gluconic acid and hydrogen peroxide,



Under the conditions of the assay, the rate of oxygen consumption is directly proportional to glucose concentration, which relates directly to the original sucrose concentration.