Industrial Lactate Analysis

A rapid high performance analysis based on the direct reaction with the specific enzyme Lactate Oxidase.

Bulletin Reference	TB – USA – Lactate – Industrial – GMRD-293/292 – V.01
Order Code(s)	GMRD-293/292
Reagent Kit Size(s)	175 ml (250 analyzer cycles), 4 x 175 ml (4 x 250 analyzer cycles)
Instruments	All LM5, GL6 and GM8 Series analyzers
Samples	Aqueous or semi-aqueous samples such as dairy products, e.g. milk, can be used directly
Sample Volume	5 µl
Analysis Time	20 seconds
Working Range	0.06 - 14 mmol/L (ca. 0.5 - 126 mg/dl)
Reagent Stability	Shelf-life reconstituted: 60 days stored at 0 - 5°C.
Note	Sample opacity or turbidity presents no problem since the detection method is electrochemical rather than spectrophotometric. Specimens should be in the pH range 4 - 8 and free from overt bacterial contamination. Lactate methodology has excellent precision at all levels, stable calibration, and is remarkably free from interferences. Alternative standards at 3.0 (27.0 mg/dl) and 5.0 mmol/L (45.0 mg/dl), and a quality control material, are available in addition to the kit calibrant of 8.0 mmol/L (72.1 mg/dl). The enzyme lactate oxidase is 100 % specific to L-Lactate. D-lactate is not measured.

Principle

In the presence of molecular oxygen, lactate is oxidised by the enzyme Lactate Oxidase (LOD) to pyruvate and hydrogen peroxide,

$$\text{L-Lactate} + O_2 \xrightarrow{\textit{Lactate Oxidase (LOD)}} \text{Pyruvate} + H_2O_2$$

Under the conditions of the assay, the rate of oxygen consumption is directly proportional to the L-lactate concentration.