

# Technical note: Interference of other sugars on Glucose and Lactate Measurements



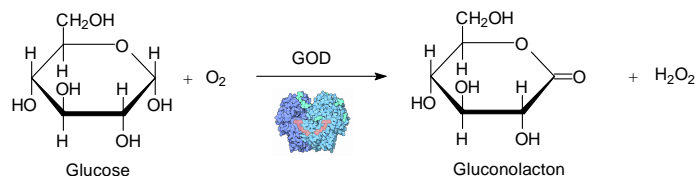
## INTRODUCTION

Glucose is by far the most important substrate for microorganisms and animal celllines in bioprocesses and Lactate is a metabolic product of various microorganisms.

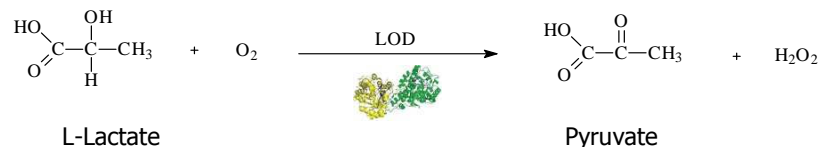
The online analyzers TRACE C2 Control and MultiTRACE allow a rapid and precise determination of Glucose and Lactate concentrations inside the bioreactor.

## MEASUREMENT PRINCIPLE

The enzyme glucose oxidase (GOD) is used for the detection of glucose



and the enzyme lactate oxidase (LOD) is used for the detection of lactate.



The Glucose and the lactate content are measured indirectly via the formed peroxide. The resulting electrical current at the electrode is directly proportional to the amount of oxidized Glucose or Lactate.



## INTERFERENCE

Interference of other sugars on the Glucose and Lactate measurements were tested. The results are shown in Table 1 and Table 2.

Sugar	Concentration	Influence on Glucose Measurement
Fructose	20 g/L	0,00 g/L
Fructose	100 g/L	0,14 g/L
Maltose	10 g/L	0,00 g/L
Lactose	10 g/L	0,00 g/L
Sucrose	10 g/L	0,00 g/L
Xylose	10 g/L	0,00 g/L
Galactose	10 g/L	0,08 g/L
Raffinose	10 g/L	0,00 g/L
Trehalose	10 g/L	0,00 g/L
Mannose	10 g/L	0,24 g/L

**Table 1.** Interference on Glucose Measurement

Most of the sugars have no influence on Glucose measurement. Mannose shows a low positive interference on the Glucose measurement. It is a known effect for all measurements based on the enzyme Glucose Oxidase [1].

Sugar	Concentration	Influence on Lactate Measurement
Fructose	20 g/L	0,00 g/L
Fructose	100 g/L	0,00 g/L
Maltose	10 g/L	0,00 g/L
Lactose	10 g/L	0,00 g/L
Sucrose	10 g/L	0,00 g/L
Xylose	10 g/L	0,00 g/L
Galactose	10 g/L	0,00 g/L
Raffinose	10 g/L	0,00 g/L
Trehalose	10 g/L	0,00 g/L
Mannose	10 g/L	0,00 g/L

**Table 2.** Interference on Lactate Measurement

None of the tested sugars has an influence on Lactate Measurements.

## LITERATURE

[1] Ho,C.S. et al., Interference of D-Mannose in Glucose Measurements by Glucose Oxidase and Hexokinase Methods, Clinical Chemistry (1991), Vol. 37, No. 3, 477