*Reagents for Microdialysis Analyser*

# *Calibrator A*

*Calibrator for Microdialysis Analyser*

For calibration of
P000023 Glucose Reagent
P000024 Lactate Reagent
P000025 Glycerol Reagent
P000026 Urea Reagent
P000063 Pyruvate Reagent
P000064 Glutamate Reagent

## *Content*

| Analyte | Concentration |
|---|---|
| Glucose | 5.55 mmol/L |
| Lactate | 2.5 mmol/L |
| Glycerol | 475 µmol/L |
| Urea | 13.3 mmol/L |
| Pyruvate | 250 µmol/L |
| Glutamate | 25 µmol/L |

## *Ordering Information*

| Ref. No. | Qty |
|---|---|
| P000057 Calibrator A | 10 × 6 mL |

µ dialysis

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# Reagents

*Reagents for Microdialysis Analyser*

# *Glucose*

***Colorimetric method for the quantitative determination of Glucose in Microdialysates.***

Measuring principle
Glucose is enzymatically oxidised by glucose oxidase (GOD). The hydrogen peroxide formed reacts with phenol and 4-amino-antipyrine. This reaction is catalyzed by peroxidase (POD) and yields the red-violet colored quinoneimine. The rate of formation is measured photometrically at 546 nm and is proportional to the glucose concentration.

$$\text{Glucose} + O_2 + H_2O \xrightarrow{\text{GOD}} \text{Gluconic acid} + H_2O_2$$

$$2\,H_2O_2 + \text{Aminoantipyrine} + \text{Phenol} \xrightarrow{\text{POD}} \text{Quinoneimine} + 4\,H_2O$$

Default linear range: 0.1 - 25 mmol/L

## *Assay Conditions*

| | | |
|---|---|---|
| Sample volume: | 0.5 µL | or 2.0 µL |
| Reagent Volume: | 14.5 µL | or 13.0 µL |
| Linear Range: | 0.1-25 | or 0.02 - 6.0 mmol/L |
| Wavelength: | 546 nm | |
| Also required: | P000057 Calibrator A | |

## *Ordering information*

Reagent sufficient for 5 × 350 determinations

| Ref. No. | Qty |
|---|---|
| P000023 Glucose Reagent | 5 × 6 mL |
| P000057 Calibrator A | 10 × 6 mL |

# *Lactate*

***Colorimetric method for the quantitative determination of Lactate in Microdialysates.***

Measuring principle
Lactate is enzymatically oxidised by lactate oxidase. The hydrogen peroxide formed reacts with 4-chlorophenol and 4-amino-antipyrine. This reaction is catalyzed by peroxidase (POD) and yields the red-violet colored quinoneimine. The rate of formation is measured photometrically at 546 nm and is proportional to the lactate concentration.

$$\text{Lactate} + O_2 + H_2O \xrightarrow{\text{LOD}} \text{Pyruvate} + H_2O_2$$

$$H_2O_2 + \text{4-Chlorophenol} + \text{4-Aminoantipyrine} \xrightarrow{\text{POD}} \text{Quinoneimine} + 2\,H_2O + HCl$$

Default linear range: 0.1 - 12 mmol/L

## *Assay Conditions*

| | | |
|---|---|---|
| Sample volume: | 0.2 µL | or 0.8 µL |
| Reagent Volume: | 14.8 µL | or 14.2 µL |
| Linear Range: | 0.1-12 | or 0.02 - 2.5 mmol/L |
| Wavelength: | 546 nm | |
| Also required: | P000057 Calibrator A | |

## *Ordering information*

Reagent sufficient for 5 × 350 determinations

| Ref. No. | Qty |
|---|---|
| P000024 Lactate Reagent | 5 × 6 mL |
| P000057 Calibrator A | 10 × 6 mL |

# Glycerol

*Colorimetric method for the quantitative determination of Glycerol in Microdialysates.*

Measuring principle
Glycerol is phosphorylated by adenosine triphosphate (ATP) and glycerol kinase (GK) to glycerol-3-phosphate, which is subsequently oxidized in the presence of glycerol-3-phosphate oxidase (GPO). The hydrogen peroxide formed reacts with 3,5-dichloro-2-hydroxy-benzene sulphonic acid (DCHBS) and 4-amino-antipyrine. This reaction is catalyzed by peroxidase (POD) and yields the red-violet colored quinoneimine. The rate of formation is measured photometrically at 546 nm and is proportional to the glycerol concentration.

$$\text{Glycerol} + \text{ATP} \xrightarrow{\text{GK}} \text{Glycerol-3-phosphate} + \text{ADP}$$

$$\text{Glycerol-3-phosphate} + O_2 \xrightarrow{\text{GPO}} H_2O_2 + \text{dihydroxyacetone phosphate}$$

$$H_2O_2 + \text{DCHBS} + \text{4-Aminoantipyrine} \xrightarrow{\text{POD}} 2\,H_2O + \text{ACSB} + \text{HCl}$$

Default linear range: 10 - 1500 µmol/L

## Assay Conditions

| | |
|---|---|
| Sample volume: | 0.5 µL or 2.0 µL |
| Reagent Volume: | 14.5 µL or 13.0 µL |
| Linear Range: | 10 - 1500 or 2 - 500 µmol/L |
| Wavelength: | 546 nm |
| Also required: | P000057 Calibrator A |

## Ordering information

Reagent sufficient for 5 x 350 determinations

| Ref. No. | Qty |
|---|---|
| P000025 Glycerol Reagent | 5 x 6 mL |
| P000057 Calibrator A | 10 x 6 mL |

# Urea

*UV-method for the quantitative determination of Urea in Microdialysates.*

Measuring principle
Urea is hydrolyzed in the presence of urease to ammonium ions and carbon dioxide. The ammonium ions react with 2-oxoglutarate in the presence of glutamate dehydrogenase (GlDH) and NADH to form glutamate and $NAD^+$. The rate of utilization of NADH is measured photometrically at 365 nm and is proportional to the urea concentration.

$$\text{Urea} + H_2O \xrightarrow{\text{Urease}} 2\,NH_3 + CO_2$$

$$2\text{-oxoglutarate} + NH_4^+ + \text{NADH} \xrightarrow{\text{GlDH}} \text{L-glutamate} + NAD^+ + H_2O$$

Linear range: 0.5 - 17 mmol/L

## Assay Conditions

| | |
|---|---|
| Sample volume: | 0.5 µL |
| Reagent Volume: | 14.5 µL |
| Linear Range: | 0.5 - 25 mmol/L (recently prepared) |
| | 0.5 - 17 mmol/L (after three days) |
| Wavelength: | 365 nm |
| Also required: | P000057 Calibrator A |

## Ordering information

Reagent sufficient for 5 x 350 determinations

| Ref. No. | Qty |
|---|---|
| P000026 Urea Reagent | 5 x 6 mL |
| P000057 Calibrator A | 10 x 6 mL |

Reagents for Microdialysis Analyser

# Pyruvate

*Colorimetric method for the quantitative determination of Pyruvate in Microdialysates.*

Measuring principle
Pyruvate is enzymatically oxidized by pyruvate oxidase (PyrOx). The hydrogen peroxide formed reacts with N-ethyl-N-(2-hydroxy-3-sulfopropyl)-m-toluidine and 4-amino-antipyrine. This reaction is catalyzed by peroxidase (POD) and yields the red-violet colored quinonediimine. The rate of formation is measured photometrically at 546 nm and is proportional to the pyruvate concentration.

$$\text{Pyruvate} + \text{inorganic phosphate} + O_2 \xrightarrow{\text{PyrOx}} \text{acetylphosphate} + CO_2 + H_2O_2$$

$$H_2O_2 + \text{4-amino-antipyrine} + \text{TOOS} \xrightarrow{\text{POD}} \text{Quinonediimine} + 4\,H_2O$$

Default linear range: 2- 300 µmol/L

## Assay Conditions

| | |
|---|---|
| Sample volume: | 0.5 µL or 2.0 µL |
| Reagent Volume: | 14.5 µL or 13.0 µL |
| Linear Range: | 10 - 1500 or 2 - 300 µmol/L |
| Wavelength: | 546 nm |
| Also required: | P000057 Calibrator A |

## Ordering information

Reagent sufficient for 5 x 350 determinations

| Ref. No. | Qty |
|---|---|
| P000063 Pyruvate Reagent | 5 x 6 mL |
| P000057 Calibrator A | 10 x 6 mL |

# Glutamate

*Colorimetric method for the quantitative determination of Glutamate in Microdialysates.*

Measuring principle
Glutamate is enzymatically oxidized by glutamate oxidase (GltOx). The hydrogen peroxide formed reacts with N-ethyl-N-(2-hydroxy-3-sulfopropyl)-m-toluidine and 4-amino-antipyrine. This reaction is catalyzed by peroxidase (POD) and yields the red-violet colored quinonediimine.The rate of formation is measured photometrically at 546 nm and is proportional to the glutamate.

$$\text{Glutamate} + O_2 \xrightarrow{\text{GltOx}} \text{2-oxoglutarate} + H_2O_2$$

$$H_2O_2 + \text{4-amino-antipyrine} + \text{TOOS} \xrightarrow{\text{POD}} \text{Quinonediimine} + 4\,H_2O$$

Linear range: 1 - 150 µmol/L

## Assay Conditions

| | |
|---|---|
| Sample volume: | 1.5 µL |
| Reagent Volume: | 7.5 µL |
| Linear Range: | 1 - 150 µmol/L |
| Wavelength: | 546 nm |
| Also required: | P000057 Calibrator A |

## Ordering information

Reagent sufficient for 5 x 250 determinations

| Ref. No. | Qty |
|---|---|
| P000064 Glutamate Reagent | 5 x4mL |
| P000057 Calibrator A | 10 x 6 mL |