

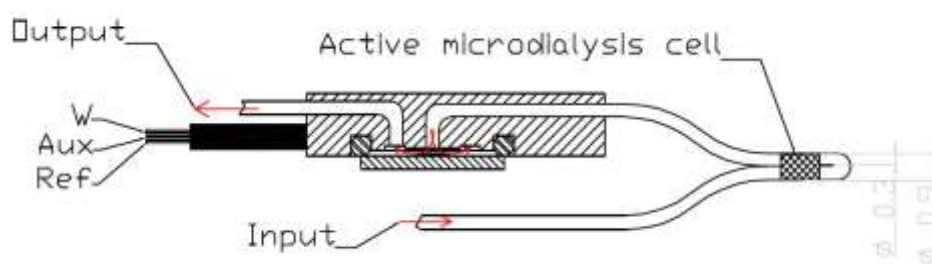
MICRODIALYSIS CATHETER FOR “IN VITRO” MEASUREMENT

Type: MDC1

Description:

The microflow cell FC2 (BVT Technologies a.s.) connected with microdialysis catheter PME011 (Probe Scientific, Ltd., UK) enables continuous monitoring of low-molecular substances in circulating blood without withdrawing blood from the testing animal. (The device is not approved for human use as a whole; the microdialysis catheter has the approval for medical use). The device can be also used for measurement in fermentation reactors, in subcutaneous tissues or in special scientific apparatuses. The main advantage of this catheter is in a special membrane which produces a “plasma-like” or “prefiltered sample” sample without the need for blood centrifugation or deproteinization. **MDC1** makes online monitoring of different blood parameters (biochemical compounds actual concentration or kinetics of enzymatic reactions) possible. The device is also convenient

for pharmacological studies. The device can be used only for non human applications.



Technical parameters:

Size	MicroEye tip (protective sheath) cross-section diameter c.0.7 x 0.5 mm
Materials	Medical grade polyamide, ABS hub
Inflow tubing	0.28 x 0.95, 410 mm (ID x OD, length)
Outflow tubing	0.28 x 0.95, 210 mm (ID x OD, length)
Inflow tube fitting	Standard luer-lock connector
Blood catheter hub	Male luer fitting with a locking luer-nut to engage and seal catheter
Usage time	Up to 48 hours “in vivo” more than 100 hours “ in vitro”
Dialysis lag-time	Dependent on perfusion rate and method of detection. Typically less than 5 minutes

The range of substances that can be monitored using this catheter:

- | | |
|--|--|
| 1) Electrolytes (such as potassium, magnesium etc.) | 4) Inflammatory mediators and growth factors (cytokines, etc.) |
| 2) Energy metabolites (glucose, lactate, pyruvate, etc.) | 5) Drugs and their metabolites (unbound “free fractions and /or total) |
| 3) Amino acids (glutamate, GABA, etc.)
Hormones and neurotransmitters (dopamine, serotonin, etc.) | |

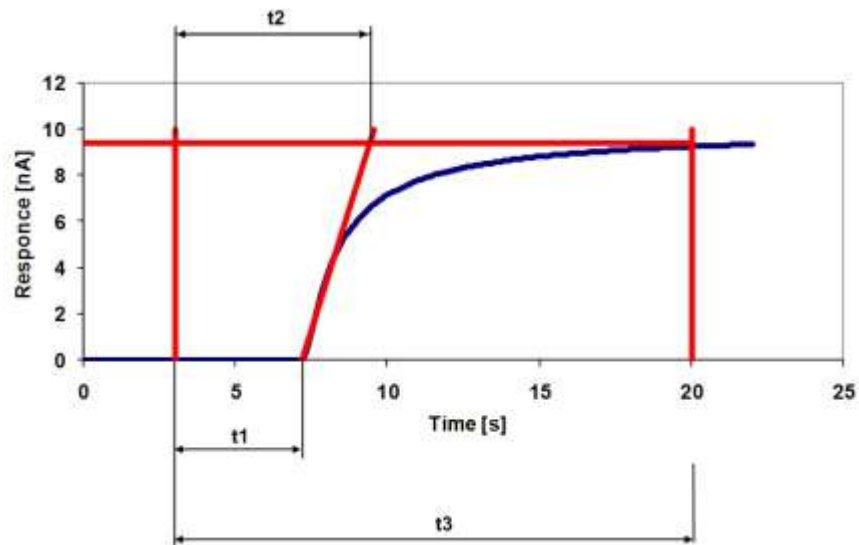
Technical parameters:

Delays:

t1 = the delay of a response after tested compound concentration change

t2 = the time in which the system would reach the stable state

t3 = the estimation of the real stable state time

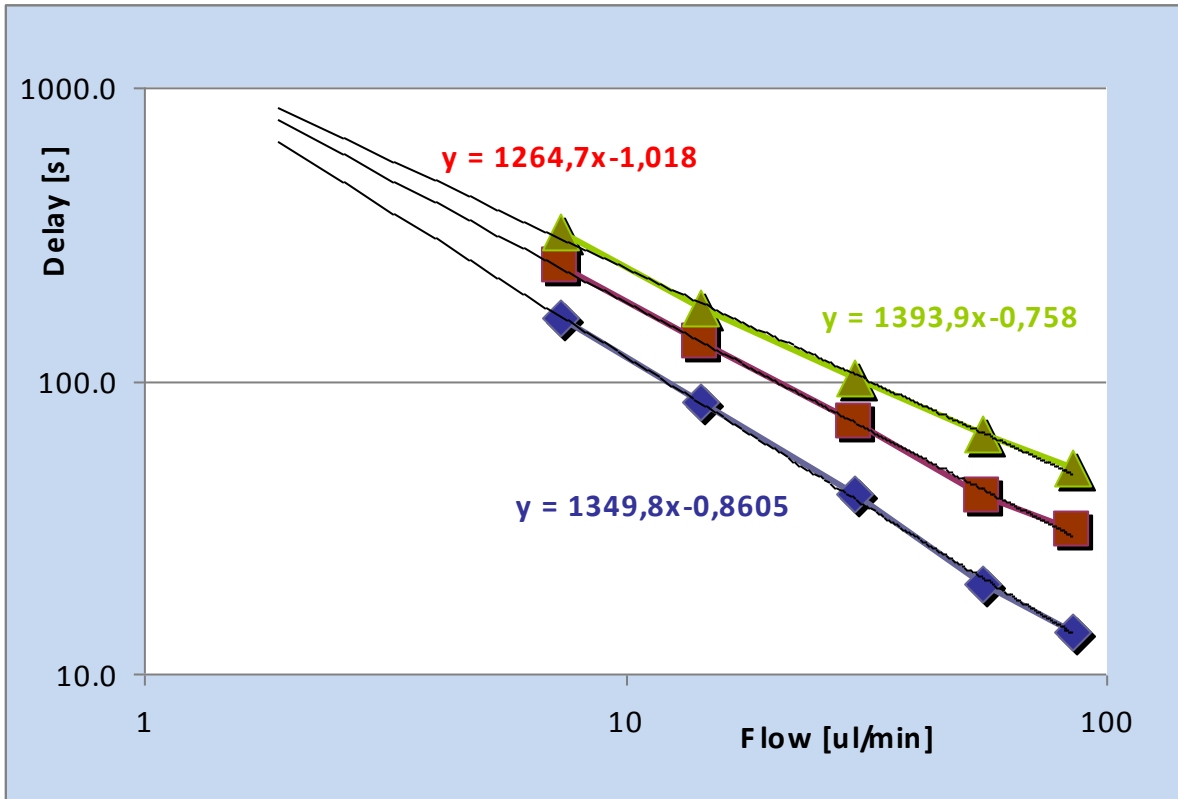


Potential use The list of possible substances that can be continuously monitored using this catheter:

- Electrolytes (such as potassium, magnesium etc.): MDC1 + conductometric cell or MDC1 + Capillary electrophoresis microchip - in development,
- Energy metabolites (glucose, lactate, pyruvate, etc.) MDC1+sensor AC1.W2.RS - glucose or AC1.W2.RS - lactate or AC1.W2.RS - pyruvate,
- Amino acids (glutamate, GABA, etc.) MDC1+sensor with detection element which detect glutamate, GABA and next amino acids,
- Hormones and neurotransmitters (dopamine, Acetylcholine) MDC1+sensor AC1.W2.RS - AChE or other bio-recognition element sensitive neurotransmitters,
- Inflammatory mediators and growth factors (cytokines, etc.) MDC1+sensor with proper bio-recognition,
- Drugs and their metabolites (unbound “free fractions and /or total) MDC1+ sensor with proper bio-recognition,
- Biotechnologies, drugs development and production MDC1+ sensor with proper bio-recognition.

In each application the flow rate and concentration range must be optimized. In some cases the methodology of detection must be developed. **The measurement of another compounds concentrations can be prepared on customer´s demand.**

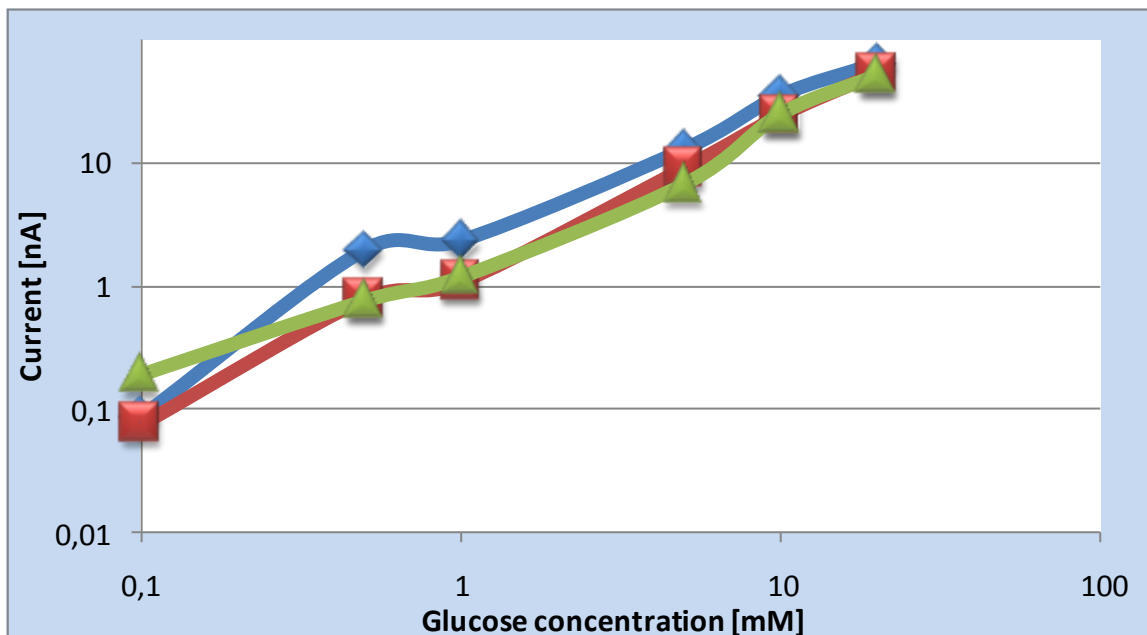
Typical dependence of delays for low molecular weight compounds (100 - 200 daltons) - measured for glucose



The delays at optimum performance flow (5 - 20 $\mu\text{l}/\text{min}$)

Flow rate [$\mu\text{l}/\text{min}$]	t_1 [s]	t_2 [s]	t_3 [s]
7.3	62.2	100.3	162.8
14.3	30.6	59.1	93.5

Example of calibration curve for glucose (Sensor AC1.W2.RS with Glucose oxidase)



Accessories:

- Linear pump
- Bioanalyzer BA1

Example of Order

- 5 pieces - MDC1

Ordering Information

- The order is specified by whole product code
- Minimum order quantity - 1 MDC1
- Delivery time for standard MDC1 Microdialysis catheters 4 weeks from receipt of order
- Delivery time for non-standard MDC1 Microdialysis catheters depends on final technical specification of order