

CE 380.01

Flow injection analysis



Description

- professional analyser for CE 380
- continuous photometric determination of the glucose concentration

The flow injection analysis (FIA) supplements CE 380. It uses the photometer in CE 380 as a detector to detect the reaction product glucose.

The multi-channel pump permanently conveys three liquid flows into the FIA. The dissolved reaction products from CE 380 and an indicator reagent are first mixed in one chamber. The mixture then flows through a helical reaction loop. The conduction of the flow in the reaction loop enables an even distribution of all substances.

Another indicator reagent is added in a second mixing chamber. After flowing through another reaction loop, the mixture enters the flow cell. There the light intensity is continuously measured with the photometer to determine the glucose concentration. To trigger the discoloration for the photometric measurement, a defined amount of the enzyme glucose oxidase (GOD) is injected through an injection valve. The indicator reagents and the enzyme GOD are not included in the scope of delivery.

CE 380.01 enables more measurements during the experiment than a manual analysis. In addition, the reproducibility is improved and it is no longer necessary to mix each individual sample.

Learning objectives/experiments

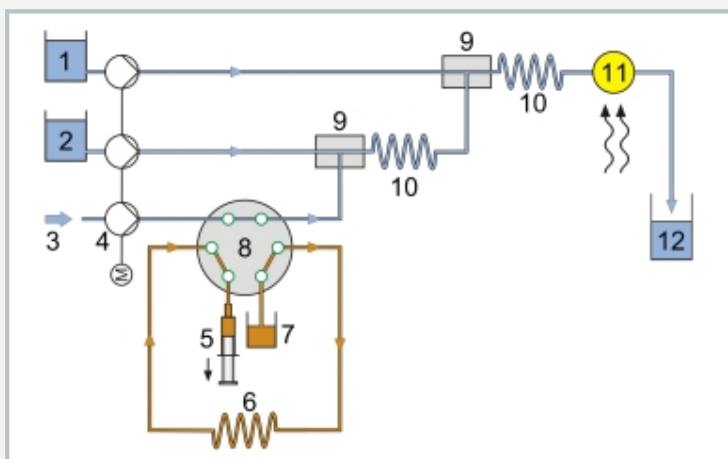
- using the flow injection analysis (FIA)
- determining the concentration
- determining the yield for CE 380

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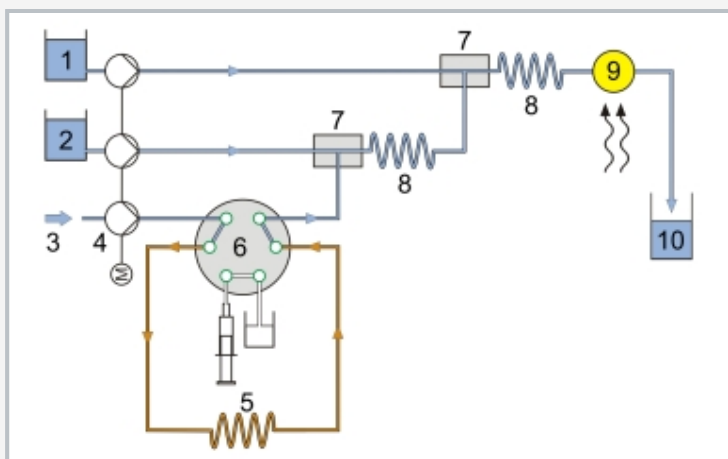
Flow injection analysis



1 tanks for reagents 1 and 2, 2 waste, 3 flow cell, 4 mixing chambers, 5 reaction loop, 6 reagent 3 GOD, 7 injection syringe, 8 injection valve, 9 multi-channel peristaltic pump



Filling the injection loop with GOD:
1 reagent 2, 2 reagent 1, 3 reaction products from CE 380, 4 multi-channel peristaltic pump, 5 injection syringe, 6 injection loop, 7 reagent 3 GOD, 8 injection valve, 9 mixing chambers, 10 reaction loops, 11 flow cell, 12 waste



Injecting GOD:
1 reagent 2, 2 reagent 1, 3 reaction products from CE 380, 4 multi-channel peristaltic pump, 5 injection loop, 6 injection valve, 7 mixing chamber, 8 reaction loop, 9 flow cell, 10 waste

Specification

- [1] continuous, photometric determination of the glucose concentration in the product from CE 380
- [2] PTFE flow cell for determining the concentration with the photometer from CE 380
- [3] multi-channel peristaltic pump for conveying the product from CE 380 and the indicator reagents
- [4] injection valve, injection syringe and injection loop for adding the enzyme GOD required for verification
- [5] 2 mixing chambers for mixing the product and indicator reagents
- [6] 2 PTFE reaction loops
- [7] 3 DURAN glass beakers for indicator reagents and GOD
- [8] tank for waste

Technical data

Flow cell travel length: 1 cm

Multi-channel peristaltic pump

- 4 channels
- max. flow rate per channel: 11 mL/min at 100min⁻¹ and hose D_i=1,42mm

Injection valve

- 6 connections
- 2 switch positions

Loops

- reaction loops: 1x 2000mm, 1x 4000mm
- injection loop: 1x 100mm

Tanks

- indicator reagents: 2x 250mL
- GOD: 1x 25mL
- waste: 1x 1000mL
- injection syringe: 1x 10mL

230V, 50Hz, 1 phase

230V, 60Hz, 1 phase

120V, 60Hz, 1 phase

UL/CSA optional

LxWxH: 450x450x250mm

Weight: approx. 8kg

Scope of delivery

- 1 experimental unit
- 1 set of hoses
- 1 set of accessories
- 1 manual

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Required accessories

CE 380 Fixed bed catalysis