

DULCOTEST® Fluoride Sensors

Reliable online measurement of fluoride – with DULCOTEST® sensors



Graduated measuring ranges 0.05 – 100 mg/l

In some countries fluoride is monitored when added to potable water, but also generally during the treatment of industrial waste water, e.g. in the semiconductor industry and electroplating.

Our product line of DULCOTEST® fluoride sensors provides two types of sensor, optimised for these applications.

The sensor consists of a fluoride transducer, the connectable transducer of a reference electrode and a separate

temperature measuring unit. The sensor is based on the potentiometric measuring principle with the help of an ion-selective electrode (ISE) and a reference electrode.

The measuring point is available fully mounted on our measuring and control system DULCOTROL® with the sensor fitting and controller DULCOMETER® diaLog DACb.

Your benefits

- Precise, real-time potentiometric measurement for efficient process control (short response time)
- Can be used up to a pH of 9.5
- Selective LaF₃ crystal eliminates faults caused by cross sensitivities
- Rapid external temperature compensation eliminates faults caused by influence of temperature
- Potentiometric principle prevents faults caused by flow changes
- Potentiometric measuring principle enables quick commissioning

Field of application

- Monitoring of fluoride in potable water. In some countries it is standard practice to add fluoride to drinking water to prevent tooth decay.
- Monitoring discharge limit values in industrial waste water, e.g. in the semiconductor industry and electroplating

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Technical Data

Fluoride Sensor FLEP 010-SE / FLEP 0100-SE

Highly selective, online fluoride sensor, for the fluoridation of potable water and monitoring of industrial waste water in the semiconductor industry and electroplating with a pH of up to 9.5

Your benefits

- Highly selective measurement of fluoride by LaF₃ single crystal silicon
- Unique pH range of up to pH 9.5 by optimisation of the electrolyte
- Two measuring ranges available: 0.05 -10 ppm for potable water; 0.5 -100 ppm for waste water. Higher measuring ranges on request

Measured variable	Fluoride ion concentration
Reference method	Photometrically (Photometer DT2C)
Measuring range	With measuring transducer FPV1: 0.05...10 mg/l With measuring transducer FP100V1: 0.5...100 mg/l
pH range	5.5 ... 9.5
Temperature	1 ... 35 °C
Max. pressure	7.0 bar, (no pressure surges)
Min. conductivity	100 µS/cm
Shaft diameter	12.0 mm
Fitting length	120 mm
Thread	PG 13.5
Electrical connection	SN6 plug-in head
Enclosure rating	IP 65
Installation	Bypass: open outlet or return of the sample water into the process line, inline: direct installation into the pipework; fixed or replaceable (replaceable fitting), tank, channel: Immersion in the immersion tube
Intake flow	10...200 l/h
Flow	20 l/h (recommended)
Response time T95 max.	30 s (for conc. > 0.5 ppm)
Shelf life	6 months
Sensor fitting	Bypass fitting DLG IV
Measuring and control equipment	D1C, DAC, DULCOMARIN®
Typical applications	Monitoring the fluoridation of potable water in waterworks, industrial waste water in the semiconductor industry and electroplating.
Resistance to	Disinfectant, solids content (turbid types of water)
Measuring principle, technology	direct potentiometric measurement, 2 electrodes, gel electrolyte, ceramic diaphragm, separate temperature measurement needed for temperature compensation. Low pH values of < 5 reduce the concentration of free fluoride ions by forming dissociated hydrofluoric acid (HF). High pH values of > 9.5 influence the signal and the slope at concentrations in the lower ppm range. The calibration line flattens off there (gentler slope) and the fluoride sensor is outside its linear range.

Order no.

FLEP 010-SE / FLEP 0100-SE

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Note: Measuring ranges from 5 ... 1,000 mg/l and 50 ... 10,000 mg/l available on request.