



201F and 201FL

ISE electrodes for fluorides measures

Fluoride specific ISE, available both in combined version and in simple version. These electrodes are suitable for laboratory applications. Typical uses are fluoride measures in solutions with aqueous and non aqueous solvent, laboratory titrations, glass manufacturing industry.

Advantages

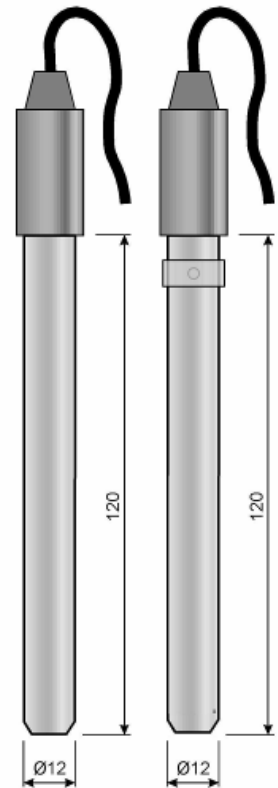
- High crystal thickness: long operation life expectancy
- Short conditioning time and fast response
- Suitable for measures in a wide range of concentrations
- Standard dimensions: 12 mm Ø, 120 mm length

Operating principle and realization

These electrodes are available in non combined version (201F) to be used together with a reference electrode (e.g. the 301C0Z0Z0A0) and in combined version (Mod. 201FL). Sensitive element is a single crystal of poisoned lanthanum fluoride, that allows a fast response in a wide range of fluoride concentrations. The dimensions of this crystal allows high reliability and long life expectancy. Electrode body is made of plastic material.

Calibration & Maintenance

The electrode can be dry stored for long periods, when not in use. Electrode conditioning is operated by keeping it immersed in water for 2 hours. Electrode response is fast when passing from diluted to concentrated solutions, while it becomes a little slower when passing from concentrated to diluted solutions. It is therefore recommended to calibrate the fluoride analyser starting from the less concentrated solution. During the measures it is recommended to allow a stabilization time when passing from a sample to a different one. Calibration is to be performed with standard solutions prepared with NaF pure for analysis and distilled (not demineralised) water. If the electrode is connected to a ion meter with logarithmic scale the calibration can be directly performed in fluoride concentration units; if the electronic unit has a mV reading the operator should plot a calibration curve on a semi logarithmic paper, with fluoride concentration (mol/L) on X axis and mV readings (voltage difference between measuring electrode and reference electrode) on the Y axis. The slope of this curve depends upon sample temperature.



Technical Specifications

Measuring element: lanthanum fluoride single crystal
 Reference electrode: Ag/AgCl + KCl in Mod. 201/FL; recommended 301C0Z0Z0A0 for Mod. 201/F
 Electrode body: plastic
 Operating temperature limits: 5÷50
 Storage temperature limits: -10÷+60 °C
 Max operating pressure: ambient
 Dimensions: Ø 12mm, 120 mm length
 Cable: integral or c/w connector, std length 1 m, up to 5 m on request
 Max distance from electronic: 5 m
 Response time: 5 sec. for 90% of final value from diluted to concentrated solutions;
 20 sec. for 90% of final value from 10⁻³ M solution to 10⁻⁴ M solution.
 Sensitivity limits: lower limit 10⁻⁶ M (0.019 ppm F⁻),
 upper limit 10⁻¹ M (1900 ppm F⁻)
 Interfering substances: Ionic strength of the solution
 OH⁻ ion: its concentration in the sample cannot be higher than fluoride concentration.
 It is recommended to buffer the pH of the sample at 6.0 pH.
 Al³⁺, Fe³⁺, Ca²⁺ ion: these ions form complexes with the fluoride ion so subtracting it from the measure.
 It is recommended to add complexing agents for these ions (e.g. citrate salt) to the sample.