

Fluoride Ion Automatic Analyzer

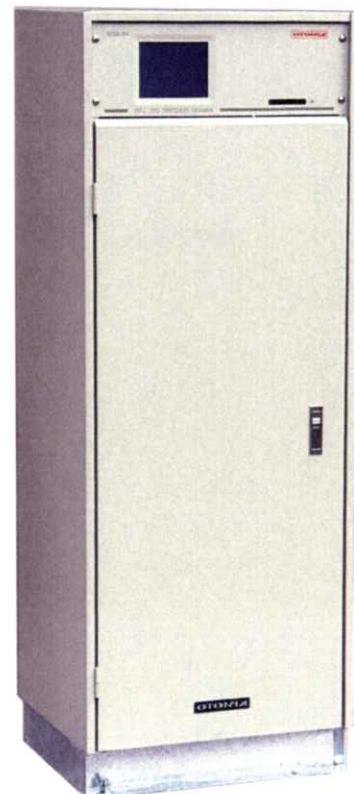
VS-6060

The measuring of the fluoride ion concentration in the water is available for the quality monitoring of the environmental water and the clean water, the control of the waste water operation devices, and the process control of the clean water.

At this analyzer, the continuous monitor of the fluoride ion uses the polishing ceramic electrode, the stable measuring for long time and the easy maintenance are possible.

The stable measuring using reagents, the zero/span stability and the high linearity from low to high concentration range are realized.

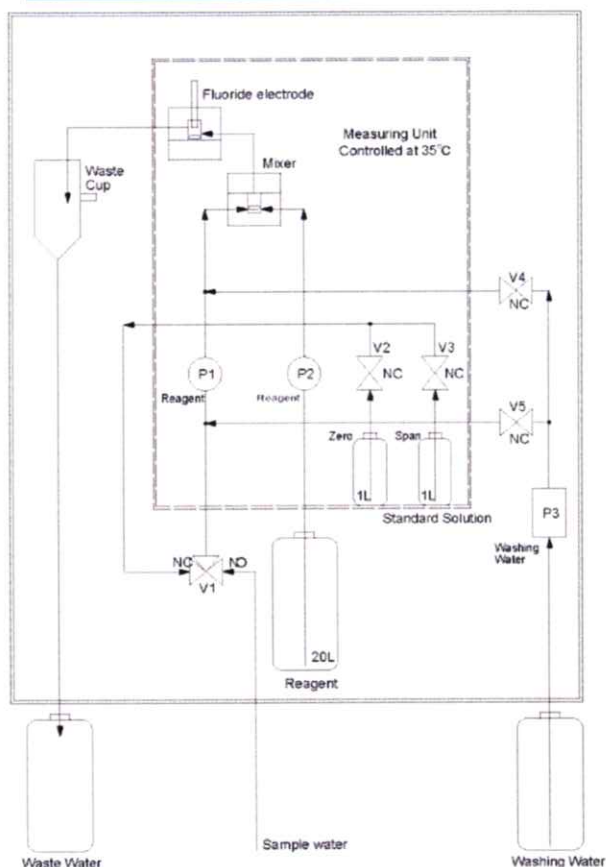
The auto washing function and the auto calibration check function are available for the higher accuracy of the measuring.



Features

- The stable continuous measuring for long time can be possible by the polishing ceramic electrode.
- By the auto calibration function, the calibration time is set freely and the accuracy is higher.
- Auto washing time can be set by the user freely.
- Concentration value is calculated by CPU, the linearity of concentration is high.
- By the large touch panel type LCD display with Chinese letter display, the user interface, the interactive operation program is kind for the operator.
- Maintenance like as Standard solution check, tube exchange etc. is easy.

Flow Diagram



Specifications

Meas. Range	0.1~10, 1~100mgF/L, 10~1000mgF/L(Option)
Repeatability	within $\pm 12\%$ /FS of each meas. range. (as Standard solution measuring)
Linearity	within $\pm 10\%$ /FS of each measuring range.
Response time	within about 10 minutes (90%)
Meas. Cycle	Continuous.
Display	Touch panel type LCD Chinese letter display, Time, Concentration, Input signal, Running situation, Set value, Message etc..
Reagent Consumption	6FAD (Interference solution), 20L/20days.
Output	10Base-T, Analog Output/DC0~1V,4~20mA (Option) 10Base-T, Telemeter Output, (RS-232C, serial recorder output)
Power	AC100V ± 10 V (50/60Hz)
Power Consumption	100VA (general)
Size	W480 \times H1295 \times D400mm
Weight	about 60kg
Operation Temp.	2~40 $^{\circ}$ C
Operation RH	less than 85%RH, not dew.

Principle

Ion Electrode

The voltage between the ion electrode and the reference electrode is measured.

The measured voltage is expressed by following equation.

$$E_x = E_0 - \frac{2.303RT}{ZF} \log \frac{C_x}{C_0}$$

E_x : Electrode voltage.

E_0 : Inner electrode voltage.

R : Gas standard. 8.314 (J/molK)

F : Faraday constant 96500 clone

C_0 : Fluoride ion concentration of inner solution. (19mg/l)

C_x : Fluoride ion concentration of sample water. (mg/l)

Z : valence of ion (1)

After assignment of standards,

$$E_x - E_0 \times = \frac{96500}{2.303 \times 8.314 \times T} \log \frac{C_x}{19}$$

And concentration equation is expressed as follows.

$$C_x (\text{mgF/l}) = K \times 10^{-5.04 \left(\frac{V - V_0}{T} \right)}$$

K : Span coefficient.

V : Amplifier output (2.5 times + 2000)

V_0 : Inner shift of amplifier. (2000mV, standard)

Liquid crystal ($^{\circ}$ K)

The electrode voltage is [0.4 × amplifier output - 800] .

Outer View



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