

## Eco-friendly and easy-to-use ammonia meter "Quick Ammonia"

### Coulometric titration method ammonia meter (NH<sub>4</sub>-N) Model AT-2000

"AT-2000" is the unique and unparalleled ammonia meter based on the coulometric titration technology that has been acquired through development and improvement of the portable rapid response COD meter "HC-series" that CKC has sold more than 10,000 units in the domestic and overseas waste water & environmental water market. It can measure ammonia (NH<sub>4</sub>-N) swiftly, accurately and easily without any specific skill.



#### Main Specifications

Measurement principle	: coulometric titration method
Measurement items	: ammonium-nitrogen (NH <sub>4</sub> -N) ammonium ion (NH <sub>4</sub> <sup>+</sup> )
Measurement range	: 0.00 – 2.00mg/L (sample volume 10.0mL) 0.00 – 20.00mg/L (sample volume 1.0mL) 0.00 – 200.0mg/L (sample volume 0.1mL)
Precision	: < CV3%
Data storage	: 50 data
Data output	: RS-232C x 1 port
Power supply	: AC90V – 240V, 50/60Hz, 50VA
Dimension & weight	: 310W x 270D x 250H mm, 5Kg (without printer)

#### Standard Accessories

AT-2000 main unit, plug adapter, dedicated printer, Printer mount, electrolyte (reagent) 500mL x 2, plastic beakers (50mL x 2, 100mL x 1), RS-232C cable

#### Main Features

- Specially developed environmental-minded reagent (not includes boron for pH adjustment)
- Wide measurement range from low to high end
- Accurate measurement not interfered by turbidity or color of the sample
- Short measurement time, typically 1 minute (in the case of the range 0 – 20mg/L)
- Calibration not needed
- Very small volume of the sample necessity (0.1mL, 1mL or 10mL)
- Long life and stain resistant electrode compared to the ion selective electrode, also quite low influence by the temperature change
- Only one type of reagent (dedicated made electrolyte) used to allow low running cost
- Measurement data can be read out to PC or printer through RS-232C port.

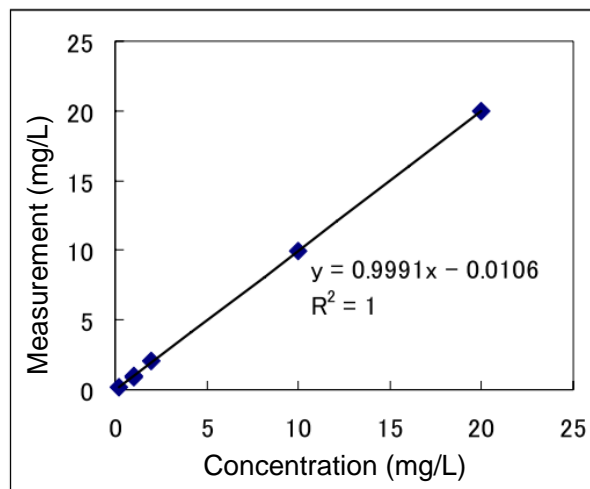


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## Result data of the standard solution measurement

Concentration (mg/L)	Instrument reading (mg/L)
0.2	0.21
1	1.02
2	2.02
10	9.94
20	19.9

Average of 3 repetitions is shown for each concentration. Average CV was 0.78%.



## Easy steps for the sample measurement (for the case of the range 0 – 20mg/L)

Fill 10mL electrolyte, 10mL distilled water and 1mL sample into the beaker



Set the beaker to the beaker guide of AT-2000



Press "MEAS" button to start measurement



Measurement automatically starts and stops to display the result reading

### About the measurement principle (coulometric titration method)

AT-2000 adopts the coulometric titration method for measurement. This method electrochemically determines the end point of the reaction between the measuring object (ammonia and ammonium) and the component generated by electrolysis of the reagent that rapidly and quantitatively reacts with the measuring object. The concentration of the measuring object component can be calculated from the electric charge (current x time) consumed till the end point of the reaction.

In the electrolytic process of the electrolyte added potassium bromide (KBr),  $\text{BrO}^-$  generated at the anode reacts with ammonia in the sample water quantitatively and instantaneously. At the end of the reaction, unreacted  $\text{BrO}^-$  becomes to appear in the water. This reaction end point is detected with  $\text{BrO}^-$  electrode to stop electrolysis. Finally the concentration of ammonia-nitrogen (mg/L) is calculated from the consumed electric charge.

(Patent pending)

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