

**WATER SUPPLIES DEPARTMENT**  
**STANDARD SPECIFICATION E-85-06**  
**AMMONIA MONITORING EQUIPMENT**

1. GENERAL

The ammonia monitoring equipment are used to measure and record the dissolved ammonia and ammonium ion concentration of the raw water continuously. It shall provide alarm when the raw water quality is unacceptable.

Colorimetric photometer shall be used for the measurement of ammonia concentration and with output linearly proportional to the concentration of ammonia being measured.

A sampling pump shall be supplied for the intake of raw water with a suitable in-line filter for the removal of suspended particles in the raw water before entering the monitoring unit. The sampling pump shall be rated such that the transfer time from the sample intake point to the analyser shall be less than 5 minutes.

The monitoring equipment shall have automatic and manual facilities for checking and calibration. The automatic calibration shall take place at regular intervals.

2. DESIGN

Unless stated otherwise in the Particular Specification, the ammonia monitoring equipment shall meet the following requirements :

- (a) Measurement range : 0.02 – 2.00 mg/l
- (b) System accuracy :  $\pm 2\%$  of the measured value  $\pm 0.02$  mg/l
- (c) Measuring interval : Less than 10 minutes
- (d) Ambient temperature : Suitable for an ambient temperature from 5°C to 40°C
- (e) Local display : Graphics monitor shall be provided to display the real time concentration, the trend curve, temperature and status of the equipment
- (f) Output signal : 4-20mA
- (g) Computer interface : Optional second current output or RS485 interface
- (h) Alarms : Two high or low concentration alarms

Volt free contacts of 220V 2A rating shall be provided for the initiation of the following alarms

- i. loss of mains supply
  - ii. loss of sample
  - iii. calibration failed
  - iv. electronic failure
  - v. out of service
- (i) Calibration : Fully automatic two-point, plus manual initiation on demand both at local or remote
- (j) Calibration period : Automatic, time selectable in the order of 24 hours
- (k) Self cleaning period : Auto-cleaning, time selectable in order of 24 hours
- (l) Power supply : 220V  $\pm$ 6%

### 3. CONSTRUCTION

The electronic components of the monitoring equipment shall be housed in a compact wall mounted case of a degree of protection IP65 to IEC 60529. Exposed components shall be corrosion-proof suitable for tropical use.

The sampling pump motor shall be of the totally enclosed type and adequately rated to produce the required flow rate. The sampling pump shall be suitable for continuous operation with minimum maintenance and parts replacement.

### 4. EQUIPMENT PARTICULARS

Unless otherwise specified, the following equipment particulars shall be provided :

- (a) The kind of reagent and standard solutions to be used and the quantity sufficient for one year continuous operation shall be supplied
- (b) Calibration method and details of calibration equipment