

## On-line Water Quality Analyzers

Applications: Aluminium, Ammonia, Calcium, Chloride, Chlorine Free, Chlorine Total, Chromium, Manganese, Nitrate, Nitrite, Phenol, Zinc, Copper, Cyanide, Fluoride, Iron, Nickel, Phosphate, Silica.



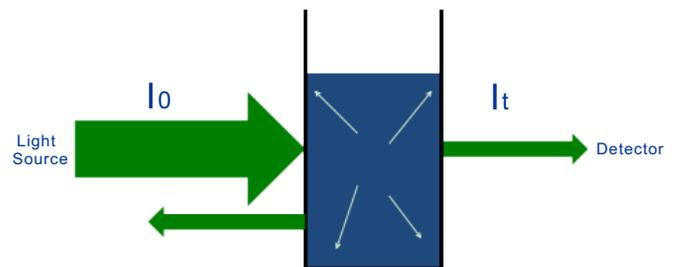
### Colorimetric Analysis Principle

According to the Beer- Lambert Law

$$A = -\lg T = \lg \frac{I_0}{I_t} = k * b * c$$

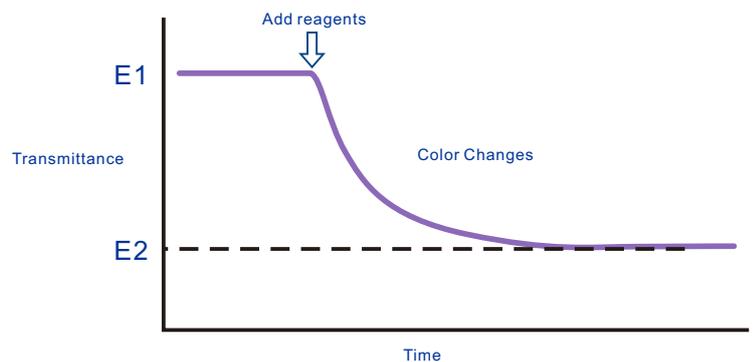
When a bundle of parallel monochromatic light passes vertically through the test solution, the absorbance of the solution (A) is proportional to the concentration of the test substance in solution (C).

In order to make the analysis more accurate, first measure the absorbance of the solution and reagents at each analysis, add color reagent to be fully reacted before measuring absorbance, using the Beer-Lambert Law to accurately calculate the concentration of the analyte in the sample.

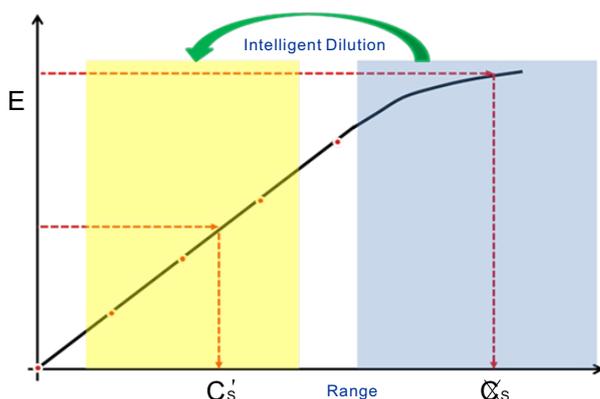


### Differential Photometry

- Low reagent consumption
- High accuracy and repeatability
- Not sensitive to the aging of the light source
- Sample color and turbidity do not affect the analysis
- High sensitivity, up to  $\mu\text{g/L}$ -level detection limit



### Automatic Range Switching



$$C_s' (\text{Dilution Sample Concentration}) * \text{Dilution Times} = C_s (\text{Sample Concentration})$$

Whether To Switch

No need to switch within the measuring range, dilute when exceeding the measuring range.

How To Dilute

The dilution factor is determined from the analysis results of the undiluted sample, one dilution without multiple

Dilution Analysis

The diluted concentration is in the optimal concentration range. Extremely widened range.

## Electrode Analysis Principle

### Nernst Equation

$$E = K' \pm \frac{2.303RT}{nF} \lg C$$

At a constant ionic strength, there is a linear relationship between the electromotive force (E) measured at the ion-selective electrode and the logarithm of the ion concentration (C) at the water sample. The content of the ion in the sample can be determined from the measured potential value, and the basic interference can be eliminated by the standard addition method.

K: Standard electrode potential, unit "V"

R: Ideal gas constant

T: Temperature, unit "Kelvin Temperature scale"

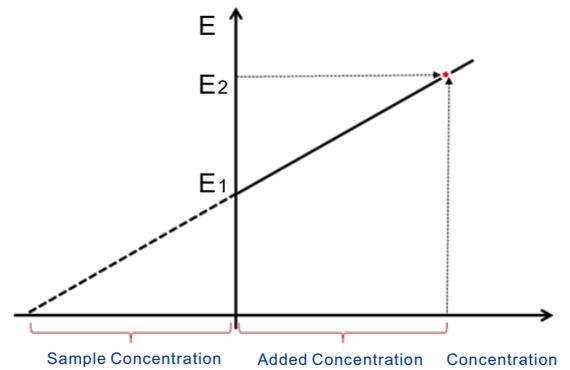
F: Faraday constant

n: Semi-reactive electron transfer, unit "mol"

C: Concentration

## Dynamic Standard Addition

- Wide range
- Correction electrode slope
- Elimination of sample matrix effects
- Automatic intrinsic validation
- Automatically adjust the concentration/volume of the standard solution according to the sample solution potential.



## Liquid Verification

When to check

Abnormal data (when exceeding the preset value) Daily check (set check frequency).

How to check

First analyze the standard solution is normal, If the analysis of the standard solution is not normal, first correct the

Check Processing

Standard fluid is normal, sample data is abnormal, data alarm.  
The standard fluid is abnormal; calibration is normal, redo the standard solution and sample.

The standard fluid is abnormal, the calibration is abnormal, the instrument fault alarm.