Claims

1. A method of measuring at least one property of a flowing, predominantly liquid sample, the method comprising the steps of:

adding at least one chemical reagent to the flowing sample, the chemical reagent capable of inducing a measurable optical effect when added to the flowing sample that is directly related to the property to be detected,

mixing the at least one chemical reagent with the flowing sample,

measuring at least two optical properties of the flowing sample to determine ~~the~~a measured optical effect, and

deducing ~~the~~ a value of the property by comparing the measured optical effect to pre-determined values associated with the property ~~to be determined~~,

wherein ~~the relationship between~~ the measured optical effect ~~and the property to be determined~~ is independent of the volume of the flowing liquid sample and independent of the volume of the reagent added to the flowing sample.

2. The method of claim 1 wherein the measured property is one item selected from the list consisting of: pH, iron concentration, chloride concentration, and any combination thereof.

3. The method of claim 1 wherein the measured optical effect is a colorimetric effect, turbidity effect, or a fluorescent effect.

4. The method of claim 1 wherein the optical effect is measured by determining an absorbance level at a particular wavelength whose measurement is recognized as an isosbestic point for all values of the property, detecting at least one other absorbance level for

one other wavelength, comparing the two absorbance levels with pre-determined data, and correlating the two absorbance levels to the known absorbance levels of a particular value of the property.

5. The method of claim 1 wherein the optical effect is measured by the reagents being at least two fluorescent dyes, one of the dyes' fluorescence at a first wavelength is affected