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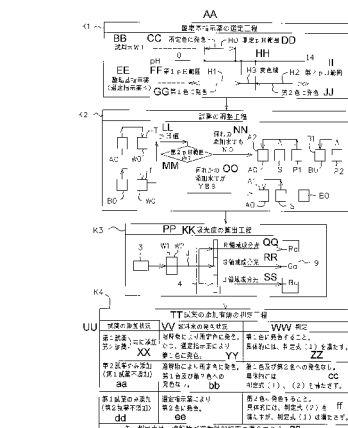
(54) Title: METHOD FOR AUTOMATICALLY MEASURING CONCENTRATION OF DISSOLVED SUBSTANCE

(54) 発明の名称: 溶解物濃度の自動測定方法

(57) Abstract: [Problem] To measure the concentration of a dissolved substance, and also detect the presence or absence of the addition of a reagent. [Solution] In the measurement of the concentration of a given dissolved substance in water of interest (W0) using sample water (W1) which is prepared by adding each of two types of reagents to the water of interest (W0) and develops a predetermined color in a predetermined pH range (H0), an acid/base indicator reagent (S) is selected, wherein the acid/base indicator reagent (S) can develop different colors, which are different from the predetermined color, in a first pH range (H1) including the predetermined pH range and in a second pH range (H2) excluding the first pH range from each other. Subsequently, each of the two types of the reagents (A0, B0) is added to the water of interest to prepare added water (T), and one of the reagents ((A0) of which the added water (T) has a pH value falling within the second pH range is mixed with the acid/base indicator reagent to prepare a reagent. Subsequently, with respect to the sample water (W1) to which the prepared reagent has been added, absorbance values (Ra··) to three regions of component light, which are transmitted light (J), are calculated. Subsequently, the concentration of the given dissolved substance is calculated and the presence or absence of the addition of the two types of the reagents is also determined on the basis of the absorbance values.

(57) 要約:

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- AA Step of selecting acid/base indicator reagent
BB Sample water W1
CC Develop predetermined color
DD pH range to be measured
EE Acid/base indicator reagent (selected indicator reagent S)
FF First pH range
GG Develop first color
HH Color-changed zone
II Second pH range
JJ Develop second color
KK Step of preparing reagent
LL pH value
MM Fall within second pH range?
NN Any added water T is NO
OO Any added water T is YES
PP Step of calculating absorbance
QQ R-region component light
RR G-region component light
SS B-region component light
TT Step of determining presence or absence of addition of reagent
UU State of addition of reagent
VV State of color development in sample water
WW Results
XX Both the first reagent and the second reagent are added
YY The predetermined color is developed by the dissolved substance, and the first color is developed by the selected indicator reagent
ZZ The first color is developed. Specifically, determination equation (1) is fulfilled.
aa Only the second reagent is added (the first reagent is not added).
bb The predetermined color is developed by the dissolved substance, but the first color or the second color is not developed.
cc The first color or the second color is not developed. Specifically, determination equation (1) or (2) is not fulfilled.
dd Only the first reagent is added (the second reagent is not added).
ee The second color is developed by the selected indicator reagent.
ff The second color is developed. Specifically, determination equation (2) is fulfilled but determination equation (1) is not fulfilled.
gg Note: The determination equations are established for a case in which the dissolved substance is free residual chlorine.

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— 国際調査報告 (条約第 21 条(3))

【課題】 溶解物濃度の測定に当たり、試薬の添加の有無も検出する。【解決手段】 測定対象水W0に2種の試薬を各々添加することにより、所定のpHの範囲H0で、所定色に発色した試料水W1を用いて、測定対象水中の所定の溶解物濃度を測定する場合に、所定のpHの範囲を含む第1のpHの範囲H1と、これから外れた第2のpHの範囲H2とにおいて、所定色以外の互いに異なる色に発色可能な酸塩基指示薬Sを選定する。つぎに、2種の試薬A0、B0のうち、これらを測定対象水に別々に添加した添加水TのpH値が、第2のpHの範囲にあるほうの、一方の試薬A0に、酸塩基指示薬を加えて試薬の調整をする。つぎに、調整後の試薬を添加した試料水W1の透過光Jである、3つの領域成分光につき、これらの吸光度Ra・・を算出する。つぎに、これらの吸光度に基づいて、所定の溶解物の濃度を算出するとともに、2種の試薬の添加の有無を判定する。