

FIG. 1

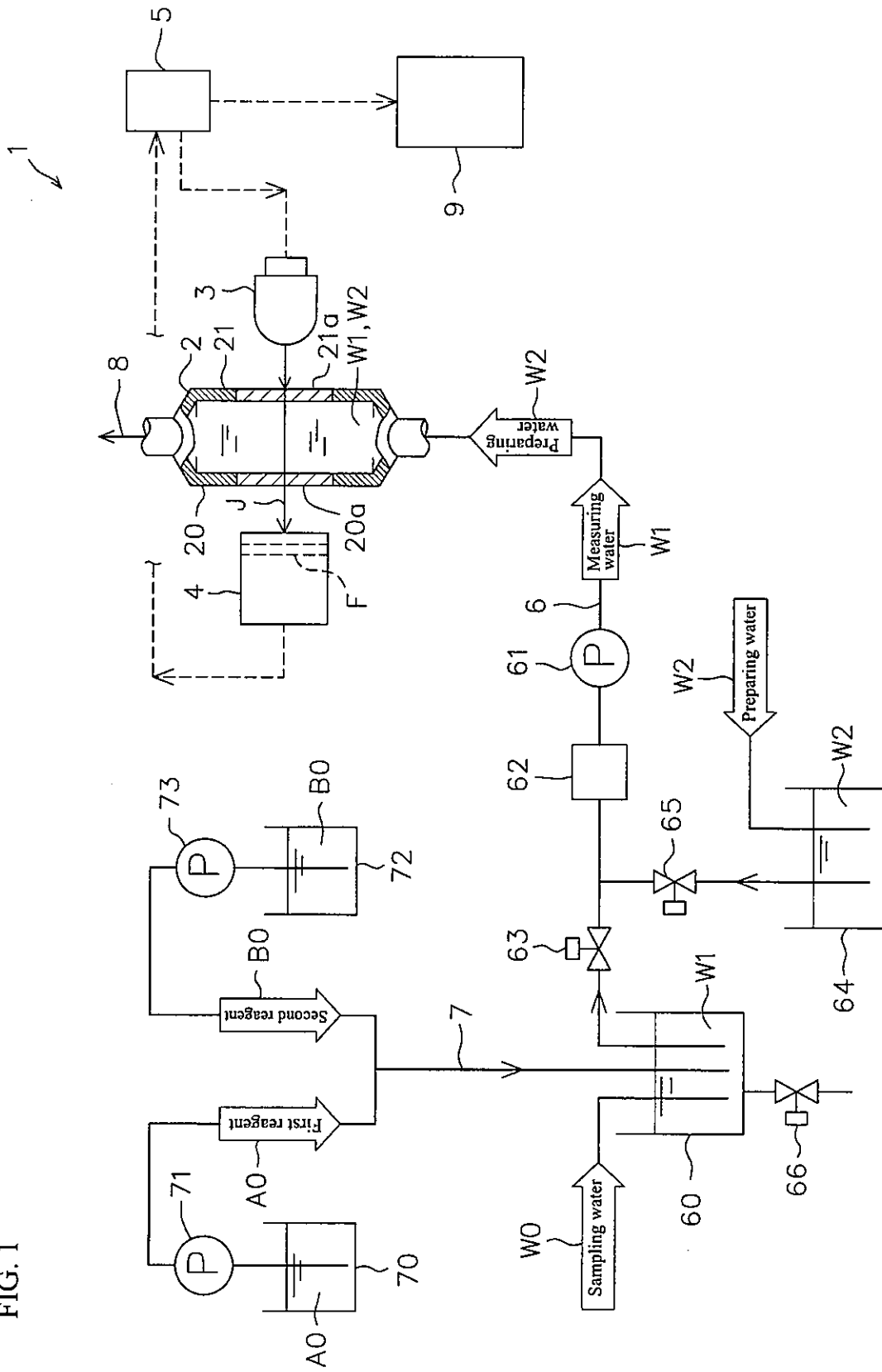


FIG. 2

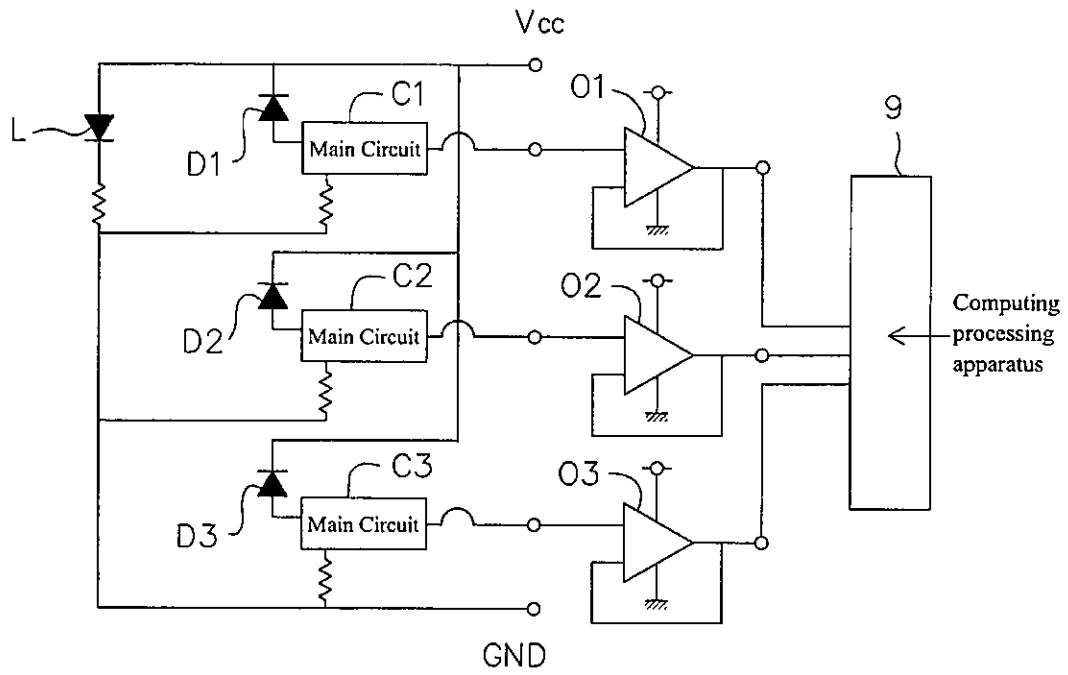


FIG. 3

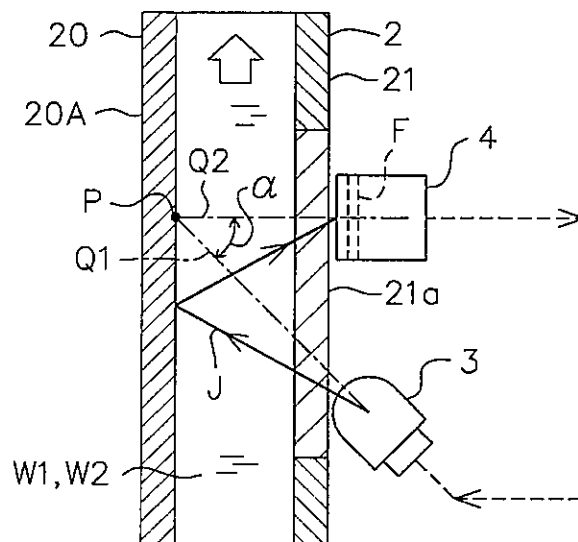


FIG. 4

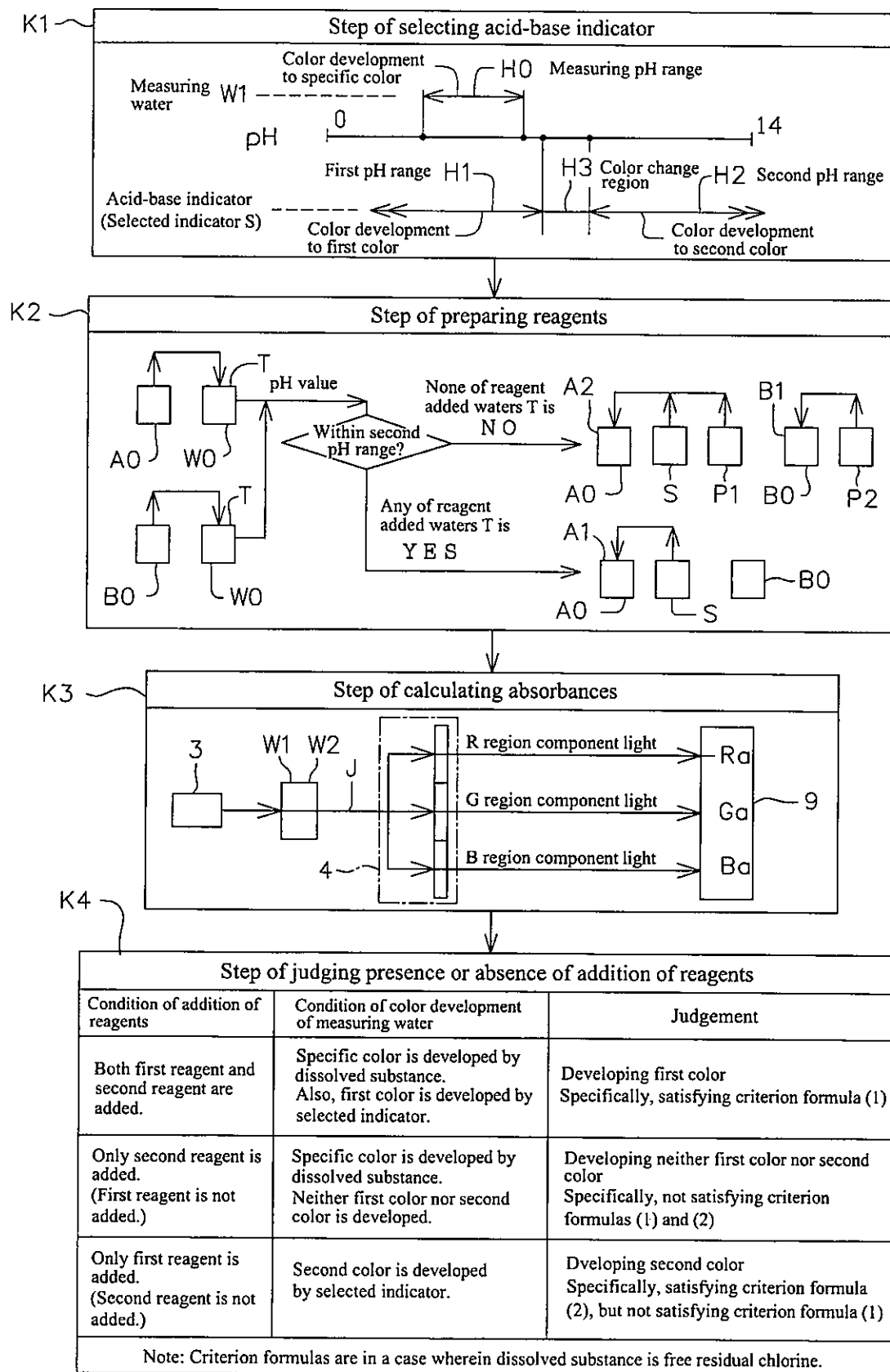


FIG. 5

| Data No | Case                               | Free residual chlorine concentration (mg/L) | Reagent addition concentration (mg/10mL) |                | Value of absorbances        |                             |                             | Presence or absence of selected indicator | Criterion formula (I) related to value of 2Ba - Ga |
|---------|------------------------------------|---------------------------------------------|------------------------------------------|----------------|-----------------------------|-----------------------------|-----------------------------|-------------------------------------------|----------------------------------------------------|
|         |                                    |                                             | First reagent (Buffer solution)          | Second reagent | R Region component light Ra | G Region component light Ga | B Region component light Ba |                                           |                                                    |
| 1       | Preparing water                    | 0.0                                         | 0                                        | 0              | 0.00                        | 0.00                        | 0.00                        | —                                         | 0.00                                               |
| 2       | Case without indicator             | 0.0                                         | 0.2                                      | 0.2            | 0.00                        | 0.00                        | 0.00                        | Absence                                   | 0.00                                               |
| 3       |                                    | 0.6                                         | 0.2                                      | 0.2            | 0.01                        | 0.17                        | 0.11                        | Absence                                   | 0.05                                               |
| 4       |                                    | 1.1                                         | 0.2                                      | 0.2            | 0.02                        | 0.33                        | 0.18                        | Absence                                   | 0.03                                               |
| 5       |                                    | 1.6                                         | 0.2                                      | 0.2            | 0.02                        | 0.44                        | 0.22                        | Absence                                   | 0.00                                               |
| 6       |                                    | 2.0                                         | 0.2                                      | 0.2            | 0.03                        | 0.55                        | 0.27                        | Absence                                   | -0.01                                              |
| 7       | Case with indicator                | 0.0                                         | 0.2                                      | 0.2            | 0.02                        | 0.08                        | 0.22                        | Presence                                  | 0.36                                               |
| 8       |                                    | 0.6                                         | 0.2                                      | 0.2            | 0.03                        | 0.23                        | 0.30                        | Presence                                  | 0.37                                               |
| 9       |                                    | 1.1                                         | 0.2                                      | 0.2            | 0.03                        | 0.37                        | 0.36                        | Presence                                  | 0.35                                               |
| 10      |                                    | 1.6                                         | 0.2                                      | 0.2            | 0.03                        | 0.48                        | 0.40                        | Presence                                  | 0.32                                               |
| 11      |                                    | 2.0                                         | 0.2                                      | 0.2            | 0.03                        | 0.60                        | 0.46                        | Presence                                  | 0.32                                               |
| 12      | Case without adding first reagent  | 0.0                                         | 0                                        | 0.2            | 0.00                        | 0.00                        | 0.01                        | Presence                                  | 0.01                                               |
| 13      |                                    | 0.6                                         | 0                                        | 0.2            | 0.02                        | 0.19                        | 0.11                        | Presence                                  | 0.03                                               |
| 14      |                                    | 1.1                                         | 0                                        | 0.2            | 0.03                        | 0.34                        | 0.18                        | Presence                                  | 0.03                                               |
| 15      |                                    | 1.6                                         | 0                                        | 0.2            | 0.02                        | 0.41                        | 0.23                        | Presence                                  | 0.06                                               |
| 16      |                                    | 2.0                                         | 0                                        | 0.2            | 0.03                        | 0.44                        | 0.26                        | Presence                                  | 0.08                                               |
| 17      | Case without adding second reagent | 0.0                                         | 0.2                                      | 0              | 0.44                        | 0.41                        | 0.10                        | Presence                                  | -0.22                                              |
| 18      |                                    | 0.6                                         | 0.2                                      | 0              | 0.45                        | 0.42                        | 0.09                        | Presence                                  | -0.23                                              |
| 19      |                                    | 1.1                                         | 0.2                                      | 0              | 0.42                        | 0.39                        | 0.10                        | Presence                                  | -0.19                                              |
| 20      |                                    | 1.6                                         | 0.2                                      | 0              | 0.46                        | 0.43                        | 0.09                        | Presence                                  | -0.25                                              |
| 21      |                                    | 2.0                                         | 0.2                                      | 0              | 0.40                        | 0.34                        | 0.08                        | Presence                                  | -0.19                                              |

FIG. 6

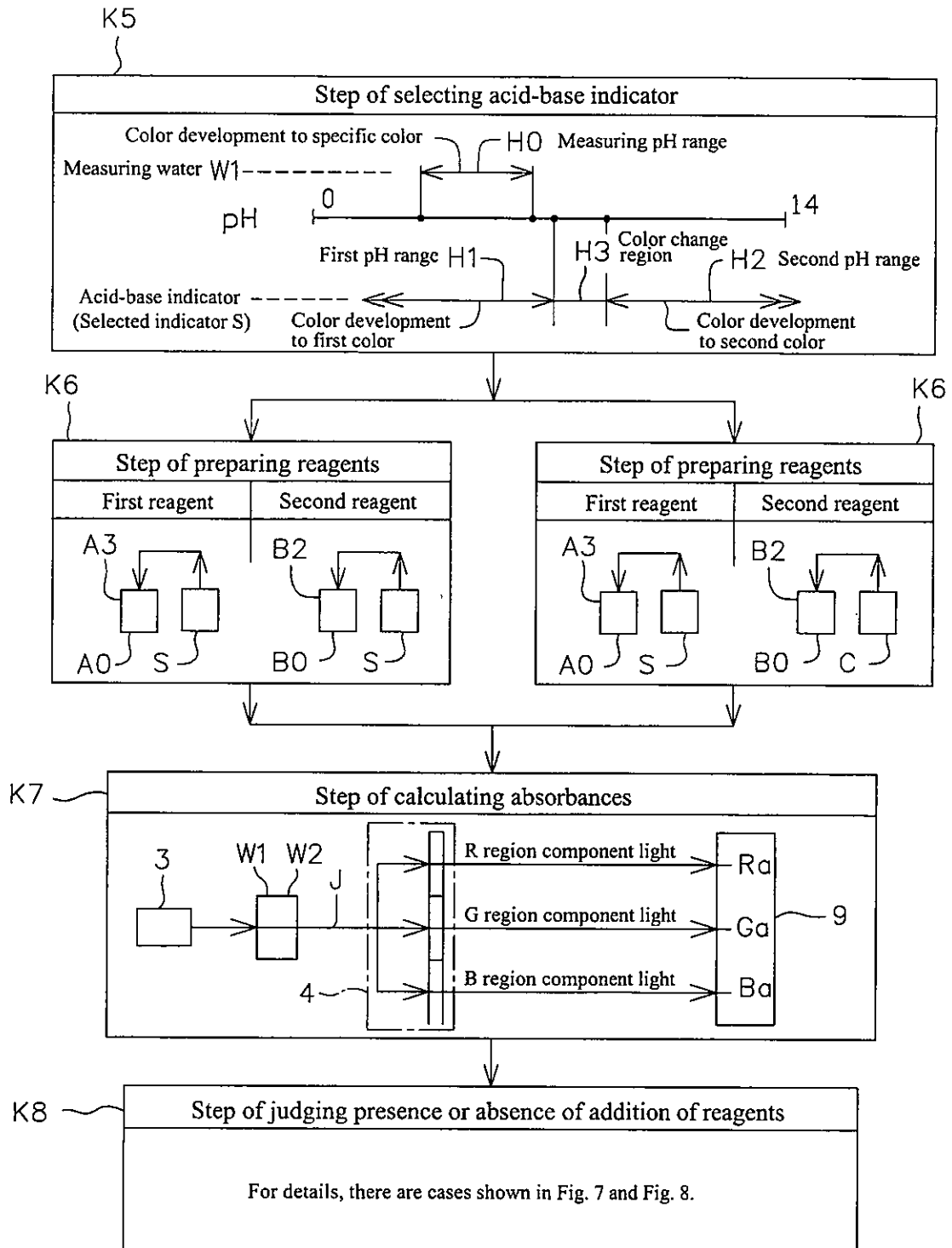


FIG. 7

K8

| Step of judging presence or absence of addition of reagents<br>Case wherein selected indicator is added to first reagent and second reagent               |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Condition of addition of reagents                                                                                                                         | Condition of color development of measuring water                                                                                                                                                                                                                                                                                                     | Judgement                                                                                        |
| Both first reagent and second reagent are added.                                                                                                          | Specific color is developed by dissolved substance.<br>Also, first color is developed deeply (strongly) by selected indicator of first reagent and second reagent.                                                                                                                                                                                    | Developing deep (strong) first color<br>Specifically, just have to satisfy criterion formula (3) |
| Only one of first reagent or second reagent is added.                                                                                                     | pH value of measuring water: First pH range<br>First color is developed by selected indicator.<br>pH value of measuring water: Second pH range<br>Second color is developed by selected indicator.<br>pH value of measuring water: Color change region<br>Intermediate color between first color and second color is developed by selected indicator. | Developing no deep (strong) first color<br>Specifically, not satisfying criterion formula (3)    |
| Both first reagent and second reagent are added.<br><br>Since pH value of sample water is unusual, pH value of measuring water is within second pH range. | Specific color is developed by dissolved substance.<br>Also, second color is developed deeply (strongly) by selected indicator of first reagent and second reagent.                                                                                                                                                                                   | Developing deep (strong) second color                                                            |
| Note: Criterion formulas are in a case wherein dissolved substance is phosphate ion.                                                                      |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                  |

FIG. 8

K8

| Step of judging presence or absence of addition of reagents<br>Case wherein selected indicator is added to first reagent and coloring agent is added to second reagent |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Condition of addition of reagents                                                                                                                                      | Condition of color development of measuring water                                                                                                                                                                                                                                                                                                                                                                                                                     | Judgement                                                                                     |
| Both first reagent and second reagent are added.                                                                                                                       | Specific color is developed by dissolved substance.<br>Also, first color is developed deeply (strongly) by selected indicator and coloring agent.                                                                                                                                                                                                                                                                                                                     | Developing deep (strong) first color<br>Specifically, satisfying criterion formula (3)        |
| Only one of first reagent or second reagent is added.                                                                                                                  | pH value of measuring water: First pH range<br>First color is developed by selected indicator or coloring agent.<br>pH value of measuring water: Second pH range<br>Second color is developed by selected indicator, or first color is developed by coloring agent.<br>pH value of measuring water: Color change region<br>Intermediate color between first color and second color is developed by selected indicator, or first color is developed by coloring agent. | Developing no deep (strong) first color<br>Specifically, not satisfying criterion formula (3) |
| Both first reagent and second reagent are added.<br><br>Since pH value of sample water is unusual, pH value of measuring water is within second pH range.              | Specific color is developed by dissolved substance.<br>Also, second color is developed by selected indicator of first reagent, and first color is developed by coloring agent of second reagent.                                                                                                                                                                                                                                                                      |                                                                                               |
| Only one of first reagent or second reagent is added.<br><br>Since pH value of sample water is unusual, pH value of measuring water is within second pH range.         | Second color is developed by selected indicator of first reagent, or first color is developed by coloring agent of second reagent.                                                                                                                                                                                                                                                                                                                                    |                                                                                               |
| Note: Criterion formulas is in a case wherein dissolved substance is phosphate ion.                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                               |

FIG. 9

| Data<br>N o | Case                                           | Phosphate ion<br>concentration<br>(mg/L) | Reagent addition<br>concentration<br>(mg/10mL) |                   | Value of absorbances           |                                |                                | Presence or<br>absence of<br>coloring<br>agent | Criterion<br>formula (3)<br>related to value<br>of Ba - 0.34Ra | Criterion<br>formula (4)<br>related to value<br>of Ga - 0.66Ra | pH of<br>measuring<br>water and the<br>like |
|-------------|------------------------------------------------|------------------------------------------|------------------------------------------------|-------------------|--------------------------------|--------------------------------|--------------------------------|------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------|
|             |                                                |                                          | First<br>reagent                               | Second<br>reagent | R Region<br>component<br>light | G Region<br>component<br>light | B Region<br>component<br>light |                                                |                                                                |                                                                |                                             |
| 1           | Preparing<br>water                             | 0.0                                      | 0                                              | 0                 | 0.00                           | 0.00                           | 0.00                           | —                                              | 0.00                                                           | 0.00                                                           | Neutrality                                  |
| 2           | Case<br>without<br>coloring<br>agent           | 0.0                                      | 0.2                                            | 0.2               | 0.00                           | 0.00                           | 0.00                           | Absence                                        | 0.00                                                           | 0.00                                                           | p H < 6.8                                   |
| 3           |                                                | 1.0                                      | 0.2                                            | 0.2               | 0.07                           | 0.04                           | 0.02                           | Absence                                        | 0.00                                                           | -0.01                                                          | p H < 6.8                                   |
| 4           |                                                | 2.0                                      | 0.2                                            | 0.2               | 0.15                           | 0.09                           | 0.05                           | Absence                                        | 0.00                                                           | -0.01                                                          | p H < 6.8                                   |
| 5           |                                                | 3.0                                      | 0.2                                            | 0.2               | 0.22                           | 0.15                           | 0.07                           | Absence                                        | 0.00                                                           | 0.00                                                           | p H < 6.8                                   |
| 6           |                                                | 4.0                                      | 0.2                                            | 0.2               | 0.30                           | 0.19                           | 0.10                           | Absence                                        | 0.00                                                           | 0.00                                                           | p H < 6.8                                   |
| 7           | Case<br>with<br>coloring<br>agent              | 5.0                                      | 0.2                                            | 0.2               | 0.35                           | 0.24                           | 0.12                           | Absence                                        | 0.00                                                           | 0.01                                                           | p H < 6.8                                   |
| 8           |                                                | 0.0                                      | 0.2                                            | 0.2               | 0.00                           | 0.06                           | 0.17                           | Presence                                       | 0.17                                                           | 0.06                                                           | p H < 6.8                                   |
| 9           |                                                | 1.0                                      | 0.2                                            | 0.2               | 0.08                           | 0.10                           | 0.20                           | Presence                                       | 0.17                                                           | 0.05                                                           | p H < 6.8                                   |
| 10          |                                                | 2.0                                      | 0.2                                            | 0.2               | 0.15                           | 0.15                           | 0.23                           | Presence                                       | 0.17                                                           | 0.05                                                           | p H < 6.8                                   |
| 11          |                                                | 3.0                                      | 0.2                                            | 0.2               | 0.22                           | 0.21                           | 0.25                           | Presence                                       | 0.17                                                           | 0.06                                                           | p H < 6.8                                   |
| 12          | Case<br>without<br>adding<br>second<br>reagent | 4.0                                      | 0.2                                            | 0.2               | 0.30                           | 0.25                           | 0.27                           | Presence                                       | 0.17                                                           | 0.05                                                           | p H < 6.8                                   |
| 13          |                                                | 5.0                                      | 0.2                                            | 0.2               | 0.36                           | 0.30                           | 0.29                           | Presence                                       | 0.17                                                           | 0.06                                                           | p H < 6.8                                   |
| 14          |                                                | 0.0                                      | 0                                              | 0.2               | 0.00                           | 0.01                           | 0.10                           | Presence                                       | 0.10                                                           | 0.01                                                           | p H < 6.8                                   |
| 15          |                                                | 1.0                                      | 0                                              | 0.2               | 0.00                           | 0.01                           | 0.10                           | Presence                                       | 0.10                                                           | 0.01                                                           | p H < 6.8                                   |
| 16          |                                                | 2.0                                      | 0                                              | 0.2               | 0.00                           | 0.01                           | 0.10                           | Presence                                       | 0.10                                                           | 0.01                                                           | p H < 6.8                                   |
| 17          | Case<br>without<br>adding<br>first<br>reagent  | 3.0                                      | 0                                              | 0.2               | 0.00                           | 0.01                           | 0.10                           | Presence                                       | 0.10                                                           | 0.01                                                           | p H < 6.8                                   |
| 18          |                                                | 4.0                                      | 0                                              | 0.2               | 0.00                           | 0.01                           | 0.10                           | Presence                                       | 0.10                                                           | 0.01                                                           | p H < 6.8                                   |
| 19          |                                                | 5.0                                      | 0                                              | 0.2               | 0.00                           | 0.01                           | 0.10                           | Presence                                       | 0.10                                                           | 0.01                                                           | p H < 6.8                                   |
| 20          |                                                | 0.0                                      | 0.2                                            | 0                 | 0.00                           | 0.00                           | 0.08                           | Presence                                       | 0.08                                                           | 0.00                                                           | p H < 6.8                                   |
| 21          |                                                | 1.0                                      | 0.2                                            | 0                 | 0.00                           | 0.00                           | 0.08                           | Presence                                       | 0.08                                                           | 0.00                                                           | p H < 6.8                                   |
| 22          | Case<br>without<br>adding<br>first<br>reagent  | 2.0                                      | 0.2                                            | 0                 | 0.00                           | 0.00                           | 0.08                           | Presence                                       | 0.08                                                           | 0.00                                                           | p H < 6.8                                   |
| 23          |                                                | 3.0                                      | 0.2                                            | 0                 | 0.00                           | 0.00                           | 0.08                           | Presence                                       | 0.08                                                           | 0.00                                                           | p H < 6.8                                   |
| 24          |                                                | 4.0                                      | 0.2                                            | 0                 | 0.00                           | 0.01                           | 0.09                           | Presence                                       | 0.09                                                           | 0.01                                                           | p H < 6.8                                   |
| 25          |                                                | 5.0                                      | 0.2                                            | 0                 | 0.00                           | 0.01                           | 0.09                           | Presence                                       | 0.09                                                           | 0.01                                                           | p H < 6.8                                   |

FIG. 10

| Data No | Case                                        | Phosphate ion concentration (mg/L) | Reagent addition concentration (mg/10mL) |                | Value of absorbances     |                          |                          | Presence or absence of coloring agent | Criterion formula (3) related to value of Ba - 0.34Ra | Criterion formula (4) related to value of Ga - 0.66Ra | pH of measuring water and the like |
|---------|---------------------------------------------|------------------------------------|------------------------------------------|----------------|--------------------------|--------------------------|--------------------------|---------------------------------------|-------------------------------------------------------|-------------------------------------------------------|------------------------------------|
|         |                                             |                                    | First reagent                            | Second reagent | R Region component light | G Region component light | B Region component light |                                       |                                                       |                                                       |                                    |
| 26      | Alkaline case without adding second reagent | 0.0                                | 0                                        | 0.2            | 0.01                     | 0.45                     | 0.03                     | Presence                              | 0.03                                                  | 0.44                                                  | pH > 8.4                           |
| 27      |                                             | 1.0                                | 0                                        | 0.2            | 0.02                     | 0.44                     | 0.04                     | Presence                              | 0.03                                                  | 0.43                                                  | pH > 8.4                           |
| 28      |                                             | 2.0                                | 0                                        | 0.2            | 0.02                     | 0.44                     | 0.03                     | Presence                              | 0.02                                                  | 0.43                                                  | pH > 8.4                           |
| 29      |                                             | 3.0                                | 0                                        | 0.2            | 0.01                     | 0.45                     | 0.04                     | Presence                              | 0.04                                                  | 0.44                                                  | pH > 8.4                           |
| 30      |                                             | 4.0                                | 0                                        | 0.2            | 0.02                     | 0.44                     | 0.04                     | Presence                              | 0.03                                                  | 0.43                                                  | pH > 8.4                           |
| 31      |                                             | 5.0                                | 0                                        | 0.2            | 0.02                     | 0.44                     | 0.04                     | Presence                              | 0.03                                                  | 0.43                                                  | pH > 8.4                           |
| 32      | Alkaline case with coloring agent           | 0.0                                | 0.2                                      | 0.2            | 0.02                     | 0.44                     | 0.11                     | Presence                              | 0.11                                                  | 0.43                                                  | pH > 8.4                           |
| 33      |                                             | 1.0                                | 0.2                                      | 0.2            | 0.09                     | 0.48                     | 0.14                     | Presence                              | 0.11                                                  | 0.42                                                  | pH > 8.4                           |
| 34      |                                             | 2.0                                | 0.2                                      | 0.2            | 0.17                     | 0.54                     | 0.17                     | Presence                              | 0.11                                                  | 0.42                                                  | pH > 8.4                           |
| 35      |                                             | 3.0                                | 0.2                                      | 0.2            | 0.24                     | 0.59                     | 0.19                     | Presence                              | 0.11                                                  | 0.43                                                  | pH > 8.4                           |
| 36      |                                             | 4.0                                | 0.2                                      | 0.2            | 0.32                     | 0.64                     | 0.21                     | Presence                              | 0.11                                                  | 0.43                                                  | pH > 8.4                           |
| 37      |                                             | 5.0                                | 0.2                                      | 0.2            | 0.38                     | 0.68                     | 0.23                     | Presence                              | 0.11                                                  | 0.44                                                  | pH > 8.4                           |