CLAIMS

1. A concentration measuring method for optically measuring a concentration of a predetermined chemical component in an object to be measured, the method comprising the steps of:

irradiating light having a first wavelength that has an absorbability with respect to the chemical component, and light having a second wavelength that has no or substantially no absorbability with respect to the chemical component, or an absorbability that is relatively lower than that of the light having the first wavelength, from a single light-emitting means toward the object to be measured using a time-sharing method;

receiving the light produced by the irradiation from the object to be measured by a single light-receiving means;

inputting a first light-receiving signal based on the light having the first wavelength and a second light-receiving signal based on the light having the second wavelength, each produced by the received light, into a common integration circuit;

integrating the first light-receiving signal and the second light-receiving signal in the integration circuit with respective integration time periods independently set in advance, and inputting a signal based on the first light-receiving signal and a signal based on the second light-receiving signal, each produced by integration in the integration circuit, into a differentia circuit; and

comparing a measured value based on an output signal output from the differential circuit in accordance with the input with data stored in storage means in advance, and deriving the concentration of the predetermined chemical component.

2. A concentration measuring method, comprising the steps of:

irradiating light having a first wavelength and light having a second wavelength, each having a different light absorptivity with respect to an object to be measured, onto the object to be measured using a time-sharing method;

receiving the light of each wavelength that optically passes through the object to be measured as a result of the irradiation of the light of each wavelength, using a common light-receiving sensor;

inputting a first signal related to the light having the first wavelength and a second signal related to the light having the second wavelength output from the light-receiving sensor into a common integration circuit;

integrating the first signal and the second signal in the integration circuit with

respective integration time periods independently set in advance, and forming a differential signal between a signal based on the first signal and a signal based on the second signal, each produced by integration in the integration circuit; and

deriving a concentration of a chemical component in the object to be measured on the basis of the differential signal.

3. The concentration measuring method according to claim 1 or 2, wherein the object to be measured is in a gas state.

4. The concentration measuring method according to claim 1 or 2, wherein the object to be measured is in a liquid state.

5. The concentration measuring method according to claim 1 or 2, wherein the object to be measured is a fruit or a vegetable.

6. The concentration measuring method according to claim 1 or 2,

wherein the light-emitting means comprises a light source that emits the light having the first wavelength and a light source that emits the light having the second wavelength.

7. The concentration measuring method according to claim 1 or 2,

wherein the light-emitting means comprises a light source that emits the light having the first wavelength and the light having the second wavelength.

8. A concentration measuring method, comprising the steps of:

irradiating a first light and a second light, each having a different light absorptivity with respect to an object to be measured, onto the object to be measured using a time-sharing method;

receiving each light that optically passes through the object to be measured by irradiation of each light onto the object to be measured, using a common light-receiving sensor;

inputting a signal related to the first light and a signal related to the second light output from the light-receiving sensor into a common integration circuit;

integrating the signal related to first light and the signal related to the second light in the integration circuit with respective integration time periods independently set in advance, and forming a differential signal between a signal based on the signal related

to the first light and a signal based on the signal related to the second light, each produced by integration in the integration circuit; and

deriving a concentration of a predetermined chemical component in the object to be measured on the basis of the differential signal.

9. The concentration measuring method according to claim 8,

wherein irradiation using the time-sharing method is performed by propagating the light through irradiation optical paths in which the optical axes of the emitted light and received light are the same or substantially the same.

10. The concentration measuring method according to claim 8,

wherein irradiation using the time-sharing method is performed by propagating the light through irradiation optical paths that are the same or substantially the same in the object to be measured.