mirror polished with cerium oxide abrasive. The glass sheet thus obtained is used as a measurement sample. The sample is dipped in an NaOH aqueous solution having pH of 12 (0.01 mol/liter) maintained at room temperature for 3 hours while applying ultrasonic waves of 100 kHz. Elution Si amount eluted in the aqueous solution is analyzed with ICP mass spectrometry to obtain a measurement value. Etching rate of a glass is calculated from the elution Si amount, SiO_2 content in the glass and a density of the glass by the following formula.

Acid resistance index B=1000×L2/[d×P×(atomic weight of Si=28)/(molecular weight of SiO_2=60)]/3

Unit of the acid resistance index B is nm/h; L2 is the elution Si amount per unit area of a glass sheet and the unit thereof is $\mu g/cm^2$; d is a density of a glass and the unit thereof is g/cm^3; and P is the content of SiO_2 in a glass in terms of mass% and the unit thereof is mass%.

[0052]

The composition of the glass of the present invention is described below using the content in terms of mol% unless otherwise indicated.

[0053]

SiO_2 is an essential component. To reduce the weight of a substrate, to improve scratch resistance of a substrate and to maintain fundamental chemical durability of a substrate, the content of SiO_2 is 60% or more, preferably 63% or more, more preferably 65% or more, and still more preferably 66% or more. On the other hand, to decrease a viscosity of a glass, to enhance melting character and to improve chemical durability in the composition near the present invention, the content thereof is 75% or less, preferably 71% or less, more preferably 70% or less, and still more preferably 69% or less.

[0054]

preferably 12% or more. To decrease a devitrification temperature and to facilitate forming, MgO+CaO is preferably 20% or less, and more preferably 18% or less.

[0058]

To increase the specific elastic modulus, to enhance acid resistance and alkali resistance and to decrease the temperature T_2 at which a viscosity is 10^2 dPa·s, a value obtained by dividing the content (mol%) of SiO_2 by the total amount RO of contents of MgO, CaO, SrO and BaO is preferably 4.3 or less, more preferably 4.1 or less, and still more preferably 3.9 or less.

[0059]

MgO is a component that increases Young's modulus and has the effect for increasing rigidity of a glass. Therefore, MgO is contained in an amount of preferably 6% or more, and more preferably 7% or more.

[0060]

The glass of the present invention substantially comprises the seven components described above, but other components may be contained within a range that does not impair the object of the present invention. However, in such a case, to maintain scratch resistance, to maintain acid resistance and alkali resistance and to maintain specific elasticity, the total content of those components is less than 5%. Components other than the above-described seven components are illustratively described below.

[0061]

ZnO is a component that exhibits the same effect as MgO, CaO, SrO and BaO, and may be contained in a range of less than 5%. The total content of ZnO and RO is preferably more than 18% and 26% or less.

[0062]

mirror polished with cerium oxide abrasive. The glass sheet thus obtained is used as a measurement sample. The sample is dipped in an NaOH aqueous solution having pH of 12 (0.01 mol/liter) maintained at room temperature for 3 hours while applying ultrasonic waves of 100 kHz. Elution Si amount eluted in the aqueous solution is analyzed with ICP mass spectrometry to obtain a measurement value. Etching rate of a glass is calculated from the elution Si amount, SiO_2 content in the glass and a density of the glass by the following formula.

Alkali resistance index B=1000×L2/[d×P×(atomic weight of Si=28)/(molecular weight of SiO_2=60)]/3

Unit of the alkali resistance index B is nm/h; L2 is the elution Si amount per unit area of a glass sheet and the unit thereof is $\mu g/cm^2$; d is a density of a glass and the unit thereof is g/cm^3; and P is the content of SiO_2 in a glass in terms of mass% and the unit thereof is mass%.

[0052]

The composition of the glass of the present invention is described below using the content in terms of mol% unless otherwise indicated.

[0053]

SiO_2 is an essential component. To reduce the weight of a substrate, to improve scratch resistance of a substrate and to maintain fundamental chemical durability of a substrate, the content of SiO_2 is 60% or more, preferably 63% or more, more preferably 65% or more, and still more preferably 66% or more. On the other hand, to decrease a viscosity of a glass, to enhance melting character and to improve chemical durability in the composition near the present invention, the content thereof is 75% or less, preferably 71% or less, more preferably 70% or less, and still more preferably 69% or less.

[0054]

preferably 12% or more. To decrease a devitrification temperature and to facilitate forming, MgO+CaO is preferably 20% or less, and more preferably 18% or less.

[0058]

To increase the specific elastic modulus, to enhance acid resistance and alkali resistance and to decrease the temperature T_2 at which a viscosity is 10^2 dPa·s, a value obtained by dividing the content (mol%) of SiO_2 by the total amount RO of contents of MgO, CaO, SrO and BaO is preferably 4.3 or less, more preferably 4.1 or less, and still more preferably 3.9 or less.

[0059]

MgO is a component that increases Young's modulus and has the effect for increasing rigidity of a glass. Therefore, MgO is contained in an amount of preferably 6% or more, and more preferably 7% or more.

[0060]

The glass of the present invention substantially comprises the seven components described above, but other components may be contained within a range that does not impair the object of the present invention. However, in such a case, to maintain scratch resistance, to maintain acid resistance and alkali resistance and to maintain specific elastic modulus, the total content of those components is less than 5%. Components other than the above-described seven components are illustratively described below.

[0061]

ZnO is a component that exhibits the same effect as MgO, CaO, SrO and BaO, and may be contained in a range of less than 5%. The total content of ZnO and RO is preferably more than 18% and 26% or less.

[0062]