CLAIMS

~~What is claimed is:~~

1. A microcrystalline glass product, comprising ~~the~~ following components in percentage by weight: SiO_2: 45-70%; Al_2O_3: 8-18%; Li_2O: 10-25%; ZrO_2: 5-15%; P_2O_5: 2-10%; and Y_2O_3: greater than 0 but less than or equal to 8%.

2. The microcrystalline glass product according to claim 1, further comprising the following components in percentage by weight: K_2O: 0-5%; and/or MgO: 0-2%; and/or ZnO: 0-2%; and/or Na_2O: 0-6%; and/or SrO: 0-5%; and/or BaO: 0-5%; and/or CaO: 0-5%; and/or TiO_2: 0-5%; and/or B_2O_3: 0-5%; and/or Ln_2O_3: 0-5%; and/or a clarifying agent: 0-2%, wherein Ln_2O_3 is one or more of La_2O_3, Gd_2O_3, and Yb_2O_3, and the clarifying agent is one or more of Sb_2O_3, SnO_2, SnO, CeO_2, F, Cl, and Br.

3. The microcrystalline glass product according to claim 1 or 2, wherein the components are expressed in percentage by weight, and a content of each component satisfies more than one of ~~the~~ following five situations:

1) Y_2O_3/ZrO_2 is greater than 0;

2) $(Li_2O+ZrO_2+P_2O_5)/Y_2O_3$ is 2.5-50.0;

3) $Al_2O_3/(Li_2O+ZrO_2+P_2O_5)$ is 0.16-0.9;

4) Na_2O/Y_2O_3 is 6.0 or less;

5) $Y_2O_3/(Al_2O_3+SiO_2)$ is greater than 0 but less than or equal to 0.15.

4. The microcrystalline glass product according to claim 1 or 2, comprising the following components in percentage by weight: SiO_2: 50-65%; and/or Al_2O_3: 8-15%; and/or Li_2O: 13-22%; and/or ZrO_2: 6-12%; and/or P_2O_5: 3.5-9%; and/or K_2O: 0-4%; and/or MgO：0-1%；and/or ZnO：0-1%；and/or Na_2O: 1-5%; and/or Y_2O_3: 1-7%; and/or SrO: 0-3%; and/or BaO: 0-3%; and/or CaO: 0-3%; and/or TiO_2: 0-3%; and/or B_2O_3: 0-3%; and/or Ln_2O_3: 0-4%; and/or a clarifying agent: 0-1%, wherein Ln_2O_3 is one or more of La_2O_3, Gd_2O_3, and Yb_2O_3, and the clarifying agent is one or more of

Sb_2O_3, SnO_2, SnO, CeO_2, F, Cl, and Br.

5. The microcrystalline glass product according to claim 1 or 2, wherein the components are expressed in percentage by weight, and a content of each component satisfies more than one of ~~the~~ following five situations:

1) Y_2O_3/ZrO_2 is 0.1-1.0;

2) $(Li_2O+ZrO_2+P_2O_5)/Y_2O_3$ is 3.0-40.0;

3) $Al_2O_3/(Li_2O+ZrO_2+P_2O_5)$ is 0.18-0.6;

4) Na_2O/Y_2O_3 is 0.1-5.0;

5) $Y_2O_3/(Al_2O_3+SiO_2)$ is 0.01-0.12.

6. ~~The microcrystalline glass product according to claim 1 or 2, comprising the following components in percentage by weight: SiO_2: 53-63%; and/or Al_2O_3: 8-12%; and/or Li_2O: 14-21%; and/or ZrO_2: 7-12%; and/or P_2O_5: 4-8%; and/or K_2O: 0-2%; and/or Y_2O_3: 2-6%; and/or B_2O_3: 0-2%; and/or Na_2O: 1.5-4%; and/or SrO: 0-1%; and/or TiO_2: 0-1%; and/or BaO: 0-1%; and/or CaO: 0-1%; and/or Ln_2O_3: 0-3%; and/or a clarifying agent: 0-0.5%, wherein Ln_2O_3 is one or more of La_2O_3, Gd_2O_3, and Yb_2O_3, and the clarifying agent is one or more of Sb_2O_3, SnO_2, SnO, CeO_2, F, Cl, and Br.~~

~~7.~~ The microcrystalline glass product according to claim 1 or 2, wherein the components are expressed in percentage by weight, and a content of each component satisfies more than one of the following five situations:

1) Y_2O_3/ZrO_2 is 0.2-0.6;

2) $(Li_2O+ZrO_2+P_2O_5)/Y_2O_3$ is 4.0-21.0;

3) $Al_2O_3/(Li_2O+ZrO_2+P_2O_5)$ is 0.19-0.5;

4) Na_2O/Y_2O_3 is 0.3-2.0;

5) $Y_2O_3/(Al_2O_3+SiO_2)$ is 0.03-0.09.

~~8. The microcrystalline glass product according to claim 1 or 2, wherein the~~

~~components exclude SrO; and/or exclude BaO; and/or exclude CaO; and/or exclude ZnO; and/or exclude PbO; and/or excludes As_2O_3; and/or exclude TiO_2; and/or exclude B_2O_3; and/or exclude Ln_2O_3; and/or exclude F; and/or exclude Ta_2O_5.~~

~~9. The microcrystalline glass product according to claim 1 or 2, wherein a crystal phase of the microcrystalline glass product comprises lithium monosilicate and/or lithium phosphate.~~

~~10~~

7. The microcrystalline glass product according to claim 1 or 2, wherein a crystal phase of the microcrystalline glass product mainly comprises lithium monosilicate; lithium monosilicate has a higher weight percentage than other crystal phases, and lithium monosilicate accounts for 10-63.5% by weight of the microcrystalline glass product~~, and preferably 15-55%.~~.

~~11~~8. The microcrystalline glass product according to claim 1 or 2, wherein a crystal phase of the microcrystalline glass product mainly comprises lithium monosilicate; lithium monosilicate has a higher weight percentage than other crystal phases, and lithium monosilicate accounts for 15-55% by weight of the microcrystalline glass product.

9. The microcrystalline glass product according to claim 1 or 2, wherein the microcrystalline glass product comprises a lithium phosphate crystal phase, and the lithium phosphate crystal phase accounts for 3-15% by weight of the microcrystalline glass product~~, and preferably 5-12%.~~.

~~12~~10. The microcrystalline glass product according to claim 1 or 2, wherein a surface stress of the microcrystalline glass product is 600 MPa or more~~, preferably 650 MPa or more, and more preferably 700 MPa or more~~; and/or a four-point bending strength is 600 MPa or more~~, preferably 650 MPa or more, and more preferably 700 MPa or more~~; and/or an ion-exchange layer depth is 20 μm or more~~, preferably 30 μm or more, and more preferably 40 μm or more~~; and/or a drop ball test height is 1300 mm

or more~~, preferably 1400 mm or more, and more preferably 1500 mm or more~~; and/or a fracture toughness is 1 MPa·$m^{1/2}$ or more~~, preferably 1.1 Mpa·$m^{1/2}$ or more, and more preferably 1.2 Mpa·$m^{1/2}$ or more~~; and/or a Vickers hardness is 700 kgf/mm^2 or more~~, preferably 720 kgf/mm^2 or more, and more preferably 730 kgf/mm^2 or more.~~

~~13. The microcrystalline glass product according to claim 1 or 2, wherein a~~; and/or a crystallinity ~~of the microcrystalline glass product~~ is 50% or more~~, preferably 60% or more, and more preferably 70% or more~~; and/or a crystal grain size is 50 nm or less~~, preferably 40 nm or less, and more preferably 30 nm or less.~~

~~14. The microcrystalline glass product according to claim 1 or 2, wherein a~~ ; and/or a haze of the microcrystalline glass product with a thickness of 1 mm or less is 0.15~~% or less, preferably 0.12% or less, and more preferably 0.1~~% or less; and/or an average transmittance of the microcrystalline glass product with the thickness of 1 mm or less at a wavelength of 400-800 nm is 89% or more; and/or a transmittance of the microcrystalline glass product with the thickness of 1 mm or less at the wavelength of 550 nm is 91% or more; and/or an average light ｜B｜ value of the microcrystalline glass product with the thickness of 1 mm or less at 400-800 nm is 0.6 or less~~, preferably 0.55 or less, and more preferably 0.5 or less.~~.

~~15. The microcrystalline glass product according to claim 14, wherein the thickness of the microcrystalline glass product is 0.2-1 mm, preferably 0.3-0.9 mm, more preferably 0.5-0.8 mm, and further preferably 0.55 mm or 0.6 mm or 0.68 mm or 0.72 mm or 0.75 mm.~~

~~16~~11. The microcrystalline glass product according to claim 1 or 2, wherein the microcrystalline glass product includes a colorant~~.~~

~~17. The microcrystalline glass product according to claim 16, wherein~~, the colorant comprises~~ the~~ following components in percentage by weight: NiO: 0-4%; and/or Ni_2O_3: 0-4%; and/or CoO: 0-2%; and/or Co_2O_3: 0-2%; and/or Fe_2O_3: 0-7%; and/or MnO_2: 0-4%; and/or Er_2O_3: 0-8%; and/or Nd_2O_3: 0-8%; and/or Cu_2O: 0-4%; and/or

Pr_2O_3: 0-8%; and/or CeO_2: 0-4%.

~~18~~12. Microcrystalline glass, comprising ~~the~~ following components in percentage by weight: SiO_2: 45-70%; Al_2O_3: 8-18%; Li_2O: 10-25%; ZrO_2: 5-15%; P_2O_5: 2-10%; and Y_2O_3: greater than 0 but less than or equal to 8%.

~~19~~13. The microcrystalline glass according to claim ~~18~~12, further comprising the following components in percentage by weight: K_2O: 0-5%; and/or MgO: 0-2%; and/or ZnO: 0-2%; and/or Na_2O: 0-6%; and/or SrO: 0-5%; and/or BaO: 0-5%; and/or TiO_2: 0-5%; and/or CaO: 0-5%; and/or B_2O_3: 0-5%; and/or Ln_2O_3: 0-5%; and/or a clarifying agent: 0-2%, wherein Ln_2O_3 is one or more of La_2O_3, Gd_2O_3, and Yb_2O_3, and the clarifying agent is one or more of Sb_2O_3, SnO_2, SnO, CeO_2, F, Cl, and Br.

~~20~~14. The microcrystalline glass according to claim ~~18~~12 or ~~19~~13, wherein the components are expressed in percentage by weight, and a content of each component satisfies more than one of ~~the~~ following five situations:

1) Y_2O_3/ZrO_2 is greater than 0;

2) $(Li_2O+ZrO_2+P_2O_5)/Y_2O_3$ is 2.5-50.0;

3) $Al_2O_3/(Li_2O+ZrO_2+P_2O_5)$ is 0.16-0.9;

4) Na_2O/Y_2O_3 is 6.0 or less;

5) $Y_2O_3/(Al_2O_3+SiO_2)$ is greater than 0 but less than or equal to 0.15.

~~21~~15. The microcrystalline glass according to claim ~~18~~12 or ~~19~~13, comprising the following components in percentage by weight: SiO_2: 50-65%; and/or Al_2O_3: 8-15%; and/or Li_2O: 13-22%; and/or ZrO_2: 6-12%; and/or P_2O_5: 3.5-9%; and/or K_2O: 0-4%; and/or MgO：0-1%；and/or ZnO：0-1%；and/or Na_2O: 1-5%; and/or Y_2O_3: 1-7%; and/or SrO: 0-3%; and/or TiO_2: 0-3%; and/or BaO: 0-3%; and/or CaO: 0-3%; and/or B_2O_3: 0-3%; and/or Ln_2O_3: 0-4%; and/or a clarifying agent: 0-1%, wherein Ln_2O_3 is one or more of La_2O_3, Gd_2O_3, and Yb_2O_3, and the clarifying agent is one or more of Sb_2O_3, SnO_2, SnO, CeO_2, F, Cl, and Br.

~~22~~16. The microcrystalline glass according to claim ~~18~~12 or ~~19~~13, wherein the components are expressed in percentage by weight, and a content of each component satisfies more than one of ~~the~~ following five situations:

1) Y_2O_3/ZrO_2 is 0.1-1.0;

2) $(Li_2O+ZrO_2+P_2O_5)/Y_2O_3$ is 3.0-40.0;

3) $Al_2O_3/(Li_2O+ZrO_2+P_2O_5)$ is 0.18-0.6;

4) Na_2O/Y_2O_3 is 0.1-5.0;

5) $Y_2O_3/(Al_2O_3+SiO_2)$ is 0.01-0.12.

~~23~~17. The microcrystalline glass according to claim ~~18~~12 or ~~19, comprising the following components in percentage by weight: SiO_2: 53-63%; and/or Al_2O_3: 8-12%; and/or Li_2O: 14-21%; and/or ZrO_2: 7-12%; and/or P_2O_5: 4-8%; and/or K_2O: 0-2%; and/or Y_2O_3: 2-6%; and/or B_2O_3: 0-2%; and/or Na_2O: 1.5-4%; and/or SrO: 0-1%; and/or TiO_2: 0-1%; and/or BaO: 0-1%; and/or CaO: 0-1%; and/or Ln_2O_3: 0-3%; and/or a clarifying agent: 0-0.5%, wherein Ln_2O_3 is one or more of La_2O_3, Gd_2O_3, and Yb_2O_3, and the clarifying agent is one or more of Sb_2O_3, SnO_2, SnO, CeO_2, F, Cl, and Br.~~

~~24. The microcrystalline glass according to claim 18 or 19~~13, wherein the components are expressed in percentage by weight, and a content of each component satisfies more than one of ~~the~~ following five situations:

1) Y_2O_3/ZrO_2 is 0.2-0.6;

2) $(Li_2O+ZrO_2+P_2O_5)/Y_2O_3$ is 4.0-21.0;

3) $Al_2O_3/(Li_2O+ZrO_2+P_2O_5)$ is 0.19-0.5;

4) Na_2O/Y_2O_3 is 0.3-2.0;

5) $Y_2O_3/(Al_2O_3+SiO_2)$ is 0.03-0.09.

~~25~~18. The microcrystalline glass according to claim ~~18~~12 or ~~19, wherein the components exclude SrO;~~13, wherein a crystal phase of the microcrystalline glass

mainly comprises lithium monosilicate; the lithium monosilicate has a higher weight percentage than other crystal phases, and~~/or exclude BaO; and/or exclude CaO; and/or exclude ZnO; and/or exclude PbO; and/or exclude As_2O_3; and/or exclude TiO_2; and/or exclude B_2O_3; and/or exclude Ln_2O_3; and/or exclude F; and/or exclude Ta_2O_5.~~

~~26. The microcrystalline glass according to claim 18 or 19, wherein a crystal phase~~ lithium monosilicate accounts for 10-63.5% by weight of the microcrystalline glass ~~comprises lithium monosilicate and/or lithium phosphate~~.

~~27~~19. The microcrystalline glass according to claim ~~18~~12 or ~~19~~13, wherein a crystal phase of the microcrystalline glass mainly comprises lithium monosilicate; the lithium monosilicate has a higher weight percentage than other crystal phases, and lithium monosilicate accounts for ~~10-63.5~~15-55% by weight of the microcrystalline glass~~, and preferably 15-55%.~~.

~~28~~20. The microcrystalline glass according to claim ~~18~~12 or ~~19~~13, wherein the microcrystalline glass comprises a lithium phosphate crystal phase, and the lithium phosphate crystal phase accounts for 3-15% by weight of the microcrystalline glass~~, and preferably 5-12%.~~.

~~29~~21. The microcrystalline glass according to claim ~~18~~12 or ~~19~~13, wherein a crystallinity of the microcrystalline glass is 50% or more~~, preferably 60% or more, and more preferably 70% or more~~; and/or a crystalgrain size is 50~~ nm or less, preferably 40 nm or less, and more preferably 30~~ nm or less; and/or a coefficient of thermal expansion is 75-95×10^{-7}/K; and/or a refractive index is 1.5700-1.5800~~.~~

~~30. The microcrystalline glass according to claim 18 or 19, wherein~~ ; and/or a body drop height of the microcrystalline glass is 1000 mm or more~~, preferably 1100 mm or more, and more preferably 1200 mm or more~~; and/or a Vickers hardness is 650 kgf/mm^2 or more~~, preferably 680 kgf/mm^2 or more, and more preferably 700 kgf/mm^2 or more.~~

~~31. The microcrystalline glass according to claim 18 or 19, wherein a~~ ; and/or a haze of the microcrystalline glass with a thickness of 1 mm or less is 0.15~~% or less,~~

preferably 0.12% or less, and more preferably 0.1% or less; and/or an average transmittance of the microcrystalline glass with the thickness of 1 mm or less at a wavelength of 400-800 nm is 89% or more; and/or a transmittance of the microcrystalline glass with the thickness of 1 mm or less at the wavelength of 550 nm is 91% or more; and/or an average light |B| value of the microcrystalline glass with the thickness of 1 mm or less at 400-800 nm is 0.6 or less, preferably 0.55 or less, and more preferably 0.5 or less..

3222. The microcrystalline glass according to claim 31, wherein the thickness of the microcrystalline glass is 0.2-1 mm, preferably 0.3-0.9 mm, more preferably 0.5-0.8 mm, and further preferably 0.55 mm12 or 0.6 mm or 0.68 mm or 0.72 mm or 0.75 mm.

33. The microcrystalline glass according to claim 18 or 1913, wherein the microcrystalline glass includes a colorant.

34. The microcrystalline glass according to claim 33, wherein, the colorant comprises the following components in percentage by weight: NiO: 0-4%; and/or Ni_2O_3: 0-4%; and/or CoO: 0-2%; and/or Co_2O_3: 0-2%; and/or Fe_2O_3: 0-7%; and/or MnO_2: 0-4%; and/or Er_2O_3: 0-8%; and/or Nd_2O_3: 0-8%; and/or Cu_2O: 0-4%; and/or Pr_2O_3: 0-8%; and/or CeO_2: 0-4%.

35. Matrix glass, comprising the following components in percentage by weight: SiO_2: 45-70%; Al_2O_3: 8-18%; Li_2O: 10-25%; ZrO_2: 5-15%; P_2O_5: 2-10%; and Y_2O_3: greater than 0 but less than or equal to 8%.

36. The matrix glass according to claim 35, further comprising the following components in percentage by weight: K_2O: 0-5%; and/or MgO: 0-2%; and/or ZnO: 0-2%; and/or Na_2O: 0-6%; and/or SrO: 0-5%; and/or BaO: 0-5%; and/or CaO: 0-5%; and/or TiO_2: 0-5%; and/or B_2O_3: 0-5%; and/or Ln_2O_3: 0-5%; and/or a clarifying agent: 0-2%, wherein Ln_2O_3 is one or more of La_2O_3, Gd_2O_3, and Yb_2O_3, and the clarifying agent is one or more of Sb_2O_3, SnO_2, SnO, CeO_2, F, Cl, and Br.

37. The matrix glass according to claim 35 or 36, wherein the components are

expressed in percentage by weight, and a content of each component satisfies more than one of the following five situations:

1) Y_2O_3/ZrO_2 is greater than 0, preferably 0.1-1.0, and more preferably 0.2-0.6;

2) $(Li_2O+ZrO_2+P_2O_5)/Y_2O_3$ is 2.5-50.0, preferably 3.0-40.0, and more preferably 4.0-21.0;

3) $Al_2O_3/(Li_2O+ZrO_2+P_2O_5)$ is 0.16-0.9, preferably 0.18-0.6, and more preferably 0.19-0.5;

4) Na_2O/Y_2O_3 is 6.0 or less, preferably 0.1-5.0, and more preferably 0.3-2.0;

5) $Y_2O_3/(Al_2O_3+SiO_2)$ is greater than 0 but less than or equal to 0.15, preferably 0.01-0.12, and more preferably 0.03-0.09.

38. The matrix glass according to claim 35 or 36, comprising the following components in percentage by weight: SiO_2: 50-65%, preferably 53-63%; and/or Al_2O_3: 8-15%, preferably 8-12%; and/or Li_2O: 13-22%, preferably 14-21%; and/or ZrO_2: 6-12%, preferably 7-12%; and/or P_2O_5: 3.5-9%, preferably 4-8%; and/or K_2O: 0-4%, preferably 0-2%; and/or MgO: 0-1%; and/or ZnO: 0-1%; and/or Na_2O: 1-5%, preferably 1.5-4%; and/or Y_2O_3: 1-7%, preferably 2-6%; and/or SrO: 0-3%, preferably 0-1%; and/or BaO: 0-3%, preferably 0-1%; and/or TiO_2: 0-3%, preferably 0-1%; and/or CaO: 0-3%, preferably 0-1%; and/or B_2O_3: 0-3%, preferably 0-2%; and/or Ln_2O_3: 0-4%, preferably 0-3%; and/or a clarifying agent: 0-1%, preferably 0-0.5%, wherein Ln_2O_3 is one or more of La_2O_3, Gd_2O_3, and Yb_2O_3, and the clarifying agent is one or more of Sb_2O_3, SnO_2, SnO, CeO_2, F, Cl, and Br.

39. The matrix glass according to claim 35 or 36, wherein the components exclude SrO; and/or exclude BaO; and/or exclude CaO; and/or exclude ZnO; and/or exclude PbO; and/or exclude As_2O_3; and/or exclude TiO_2; and/or exclude B_2O_3; and/or exclude Ln_2O_3; and/or exclude F; and/or exclude Ta_2O_5.

40. The matrix glass according to claim 35 or 36, wherein a coefficient of thermal expansion of the microcrystalline glass is $50-70\times10^{-7}/K$; and/or a refractive index is

~~1.5600-1.5700.~~

~~41. The matrix glass according to claim 35 or 36, wherein the matrix glass includes a colorant.~~

~~42. The matrix glass according to claim 41, wherein the colorant comprises the following components in percentage by weight: NiO: 0-4%; and/or Ni_2O_3: 0-4%; and/or CoO: 0-2%; and/or Co_2O_3: 0-2%; and/or Fe_2O_3: 0-7%; and/or MnO_2: 0-4%; and/or Er_2O_3: 0-8%; and/or Nd_2O_3: 0-8%; and/or Cu_2O: 0-4%; and/or Pr_2O_3: 0-8%; and/or CeO_2: 0-4%.~~

~~43~~23. A glass cover plate, comprising the microcrystalline glass product according to any one of claims 1 to ~~17~~11, and/or the microcrystalline glass according to any one of claims ~~18~~12 to ~~34, and/or the matrix glass according to any one of claims 35 to 42~~22.

~~44~~24. A glass component, comprising the microcrystalline glass product according to any one of claims 1 to ~~17~~11, and/or the microcrystalline glass according to any one of claims ~~18~~12 to ~~34, and/or the matrix glass according to any one of claims 35 to 42~~22.

~~45~~25. A display device, comprising the microcrystalline glass product according to any one of claims 1 to ~~17~~11, and/or the microcrystalline glass according to any one of claims ~~18~~12 to ~~34, and/or the matrix glass according to any one of claims 35 to 42~~22, and/or the glass cover plate according to claim ~~43~~23, and/or the glass component according to claim ~~44~~24.

~~46~~26. An electronic device, comprising the microcrystalline glass product according to any one of claims 1 to ~~17~~11, and/or the microcrystalline glass according to any one of claims ~~18~~12 to ~~34, and/or the matrix glass according to any one of claims 35 to 42~~22, and/or the glass cover plate according to claim ~~43~~23, and/or the glass component according to claim ~~44~~24.

~~47. A~~27. The method for manufacturing a microcrystalline glass product~~, the method including~~ according to claim 1 to 11 includes the following steps:

_forming matrix glass~~, the matrix glass including the following components in~~

~~percentage by weight: SiO_2: 45-70%; Al_2O_3: 8-18%; Li_2O: 10-25%; ZrO_2: 5-15%; P_2O_5: 2-10%;~~; and ~~Y_2O_3: greater than 0 but less than or equal to 8%; and~~

forming the matrix glass into a microcrystalline glass through a crystallization process, and then forming the microcrystalline glass into a microcrystalline glass product through a chemical strengthening process.

~~48~~28. The method for manufacturing ~~a~~the microcrystalline glass product according to claim ~~47, wherein the matrix glass further includes the following components in percentage by weight: K_2O: 0-5%; and/or MgO: 0-2%; and/or ZnO: 0-2%; and/or Na_2O: 0-6%; and/or SrO: 0-5%; and/or TiO_2: 0-5%; and/or BaO: 0-5%; and/or CaO: 0-5%; and/or B_2O_3: 0-5%; and/or Ln_2O_3: 0-5%; and/or a clarifying agent: 0-2%, wherein Ln_2O_3 is one or more of La_2O_3, Gd_2O_3, and Yb_2O_3, and the clarifying agent is one or more of Sb_2O_3, SnO_2, SnO, CeO_2, F, Cl, and Br.~~

~~49. The method for manufacturing a microcrystalline glass product according to claim 47 or 48, wherein the components of the matrix glass are expressed in percentage by weight, and a content of each component satisfies more than one of the following five situations:~~

~~1) Y_2O_3/ZrO_2 is greater than 0, preferably 0.1-1.0, and more preferably 0.2-0.6;~~

~~2) $(Li_2O+ZrO_2+P_2O_5)/Y_2O_3$ is 2.5-50.0, preferably 3.0-40.0, and more preferably 4.0-21.0;~~

~~3) $Al_2O_3/(Li_2O+ZrO_2+P_2O_5)$ is 0.16-0.9, preferably 0.18-0.6, and more preferably 0.19-0.5;~~

~~4) Na_2O/Y_2O_3 is 6.0 or less, preferably 0.1-5.0, and more preferably 0.3-2.0;~~

~~5) $Y_2O_3/(Al_2O_3+SiO_2)$ is greater than 0 but less than or equal to 0.15, preferably 0.01-0.12, and more preferably 0.03-0.09.~~

~~50. The method for manufacturing a microcrystalline glass product according to claim 47 or 48, wherein the matrix glass includes the following components in~~

~~percentage by weight: SiO_2: 50-65%, preferably 53-63%; and/or Al_2O_3: 8-15%, preferably 8-12%; and/or Li_2O: 13-22%, preferably 14-21%; and/or ZrO_2: 6-12%, preferably 7-12%; and/or P_2O_5: 3.5-9%, preferably 4-8%; and/or K_2O: 0-4%, preferably 0-2%; and/or MgO: 0-1%; and/or ZnO: 0-1%; and/or Na_2O: 1-5%, preferably 1.5-4%; and/or Y_2O_3: 1-7%, preferably 2-6%; and/or SrO: 0-3%, preferably 0-1%; and/or BaO: 0-3%, preferably 0-1%; and/or TiO_2: 0-3%, preferably 0-1%; and/or CaO: 0-3%, preferably 0-1%; and/or B_2O_3: 0-3%, preferably 0-2%; and/or Ln_2O_3: 0-4%, preferably 0-3%; and/or a clarifying agent: 0-1%, preferably 0-0.5%, wherein Ln_2O_3 is one or more of La_2O_3, Gd_2O_3, and Yb_2O_3, and the clarifying agent is one or more of Sb_2O_3, SnO_2, SnO, CeO_2, F, Cl, and Br.~~

~~51. The method for manufacturing a microcrystalline glass product according to claim 47 or 48, wherein the matrix glass excludes SrO; and/or excludes BaO; and/or excludes CaO; and/or excludes ZnO; and/or excludes PbO; and/or excludes As_2O_3; and/or excludes TiO_2; and/or excludes B_2O_3; and/or excludes Ln_2O_3; and/or excludes F; and/or excludes Ta_2O_5.~~

~~52. The method for manufacturing a microcrystalline glass product according to claim 47 or 48, wherein the matrix glass includes a colorant, and the colorant comprises the following components in percentage by weight: NiO: 0-4%; and/or Ni_2O_3: 0-4%; and/or CoO: 0-2%; and/or Co_2O_3: 0-2%; and/or Fe_2O_3: 0-7%; and/or MnO_2: 0-4%; and/or Er_2O_3: 0-8%; and/or Nd_2O_3: 0-8%; and/or Cu_2O: 0-4%; and/or Pr_2O_3: 0-8%; and/or CeO_2: 0-4%.~~

~~53. The method for manufacturing the microcrystalline glass product according to claim 47 or 48~~27, wherein the crystallization process comprises the following steps: increasing the temperature to a prescribed crystallization treatment temperature, after reaching the crystallization treatment temperature, maintaining the temperature for a certain period of time, and then cooling down, wherein the crystallization treatment temperature is 600-750°C, and ~~preferably 650°C to 700°C, and~~ the holding time at the crystallization treatment temperature is ~~0-8 hours, and preferably~~ 1-6 hours.

~~54~~29. The method for manufacturing the microcrystalline glass product according to claim ~~47 or 48~~27, wherein ~~the~~ crystallization process comprises the following steps: performing a nucleation process at a first temperature, and then performing a crystal growth process at a second temperature higher than the nucleation process temperature~~.~~

~~55. The method for manufacturing the microcrystalline glass product according to claim 54, wherein crystallization process comprises the following steps:~~, the first temperature is 470-630°C, the second temperature is 650-750°C; the holding time at the first temperature is ~~0-24 hours, and preferably~~ 2-15 hours; the holding time at the second temperature is ~~0-10 hours, and preferably~~ 0.5-6 hours.

~~56~~30. The method for manufacturing the microcrystalline glass product according to claim ~~47 or 48~~27, wherein the chemical strengthening process comprises: immersing the microcrystalline glass in a salt bath of molten Na salt at a temperature of 430°C to 470°C for 6-20 hours~~, and a preferred temperature range being 435°C to 460°C, a preferred time range being 8-13 hours~~; and/or immersing the microcrystalline glass in a salt bath of molten K salt at the temperature of 400°C to 450°C for 1-8 hours~~, and a preferred time range being 2-4 hours.~~.

~~57~~31. The method for manufacturing ~~the~~a microcrystalline glass ~~product~~ according to claim ~~47 or 48, wherein a crystal phase of the microcrystalline glass product comprises lithium monosilicate and/or lithium phosphate.~~

~~58. The method for manufacturing the microcrystalline glass product according to claim 47 or 48, wherein a crystal phase of the microcrystalline glass product mainly comprises lithium monosilicate; lithium monosilicate has a higher weight percentage than other crystal phases, and lithium monosilicate accounts for 10-63.5% by weight of the microcrystalline glass product, and preferably 15-55%.~~

~~59. The method for manufacturing the microcrystalline glass product according to claim 47 or 48, wherein the microcrystalline glass product comprises a lithium phosphate crystal phase, and the lithium phosphate crystal phase accounts for 3-15%~~

by weight of the microcrystalline glass product, and preferably 5-12%.

60. The method for manufacturing the microcrystalline glass product according to claim 47 or 48, wherein a surface stress of the microcrystalline glass product is 600 MPa or more, preferably 650 Mpa or more, and more preferably 700 Mpa or more; and/or a four-point bending strength is 600 Mpa or more, preferably 650 Mpa or more, and more preferably 700 Mpa or more; and/or an ion-exchange layer depth is 20 μm or more, preferably 30 μm or more, and more preferably 40 μm or more; and/or a drop ball test height is 1300 mm or more, preferably 1400 mm or more, and more preferably 1500 mm or more; and/or a fracture toughness is 1 Mpa·$m^{1/2}$ or more, preferably 1.1 Mpa·$m^{1/2}$ or more, and more preferably 1.2 Mpa·$m^{1/2}$ or more; and/or a Vickers hardness is 700 kgf/mm^2 or more, preferably 720 kgf/mm^2 or more, and more preferably 730 kgf/mm^2 or more; and/or a crystallinity is 50% or more, preferably 60% or more, and more preferably 70% or more; and/or a crystal grain size is 50 nm or less, preferably 40 nm or less, and more preferably 30 nm or less.

61. The method for manufacturing the microcrystalline glass product according to claim 47 or 48, wherein a haze of the microcrystalline glass product with a thickness of 1 mm or less is 0.15% or less, preferably 0.12% or less, and more preferably 0.1% or less; and/or an average transmittance of the microcrystalline glass product with the thickness of 1 mm or less at a wavelength of 400-800 nm is 89% or more; and/or a transmittance of the microcrystalline glass product with the thickness of 1 mm or less at the wavelength of 550 nm is 91% or more; and/or an average light $|B|$ value of the microcrystalline glass product with the thickness of 1 mm or less at 400-800 nm is 0.6 or less, preferably 0.55 or less, and more preferably 0.5 or less.

62. The method for manufacturing the microcrystalline glass product according to claim 47 or 48, wherein the thickness of the microcrystalline glass product is 0.2-1 mm, preferably 0.3-0.9 mm, more preferably 0.5-0.8 mm, and further preferably 0.55 mm or 0.6 mm or 0.68 mm or 0.72 mm or 0.75 mm.

63. A method for manufacturing microcrystalline glass, the method including the

~~following~~ to 22 includes the following steps:

forming matrix glass~~, the matrix glass including the following components in percentage by weight: SiO_2: 45-70%; Al_2O_3: 8-18%; Li_2O: 10-25%; ZrO_2: 5-15%; P_2O_5: 2-10%; and Y_2O_3: greater than 0 but less than or equal to 8%; and~~

; and forming the matrix glass into a microcrystalline glass through a crystallization process.

~~64. The method for manufacturing microcrystalline glass according to claim 63, wherein the matrix glass further includes the following components in percentage by weight: K_2O: 0-5%; and/or MgO: 0-2%; and/or ZnO: 0-2%; and/or Na_2O: 0-6%; and/or SrO: 0-5%; and/or BaO: 0-5%; and/or TiO_2: 0-5%; and/or CaO: 0-5%; and/or B_2O_3: 0-5%; and/or Ln_2O_3: 0-5%; and/or a clarifying agent: 0-2%, wherein Ln_2O_3 is one or more of La_2O_3, Gd_2O_3, and Yb_2O_3, and the clarifying agent is one or more of Sb_2O_3, SnO_2, SnO, CeO_2, F, Cl, and Br.~~

~~65. The method for manufacturing microcrystalline glass according to claim 63 or 64, wherein the components of the matrix glass are expressed in percentage by weight, and a content of each component satisfies more than one of the following five situations:~~

~~1) Y_2O_3/ZrO_2 is greater than 0, preferably 0.1-1.0, and more preferably 0.2-0.6;~~

~~2) $(Li_2O+ZrO_2+P_2O_5)/Y_2O_3$ is 2.5-50.0, preferably 3.0-40.0, and more preferably 4.0-21.0;~~

~~3) $Al_2O_3/(Li_2O+ZrO_2+P_2O_5)$ is 0.16-0.9, preferably 0.18-0.6, and more preferably 0.19-0.5;~~

~~4) Na_2O/Y_2O_3 is 6.0 or less, preferably 0.1-5.0, and more preferably 0.3-2.0;~~

~~5) $Y_2O_3/(Al_2O_3+SiO_2)$ is greater than 0 but less than or equal to 0.15, preferably 0.01-0.12, and more preferably 0.03-0.09.~~

~~66. The method for manufacturing microcrystalline glass according to claim 63 or~~

~~64, wherein the matrix glass includes the following components in percentage by weight: SiO_2: 50-65%, preferably 53-63%; and/or Al_2O_3: 8-15%, preferably 8-12%; and/or Li_2O: 13-22%, preferably 14-21%; and/or ZrO_2: 6-12%, preferably 7-12%; and/or P_2O_5: 3.5-9%, preferably 4-8%; and/or K_2O: 0-4%, preferably 0-2%; and/or MgO: 0-1%; and/or ZnO: 0-1%; and/or Na_2O: 1-5%, preferably 1.5-4%; and/or Y_2O_3: 1-7%, preferably 2-6%; and/or SrO: 0-3%, preferably 0-1%; and/or BaO: 0-3%, preferably 0-1%; and/or CaO: 0-3%, preferably 0-1%; and/or TiO_2: 0-3%, preferably 0-1%; and/or B_2O_3: 0-3%, preferably 0-2%; and/or Ln_2O_3: 0-4%, preferably 0-3%; and/or a clarifying agent: 0-1%, preferably 0-0.5%, wherein Ln_2O_3 is one or more of La_2O_3, Gd_2O_3, and Yb_2O_3, and the clarifying agent is one or more of Sb_2O_3, SnO_2, SnO, CeO_2, F, Cl, and Br.~~

~~67. The method for manufacturing microcrystalline glass according to claim 63 or 64, wherein the matrix glass excludes SrO; and/or excludes BaO; and/or excludes CaO; and/or excludes ZnO; and/or excludes PbO; and/or excludes As_2O_3; and/or excludes TiO_2; and/or excludes B_2O_3; and/or excludes Ln_2O_3; and/or excludes F; and/or excludes Ta_2O_5.~~

~~68. The method for manufacturing microcrystalline glass according to claim 63 or 64, wherein the matrix glass includes a colorant, and the colorant comprises the following components in percentage by weight: NiO: 0-4%; and/or Ni_2O_3: 0-4%; and/or CoO: 0-2%; and/or Co_2O_3: 0-2%; and/or Fe_2O_3: 0-7%; and/or MnO_2: 0-4%; and/or Er_2O_3: 0-8%; and/or Nd_2O_3: 0-8%; and/or Cu_2O: 0-4%; and/or Pr_2O_3: 0-8%; and/or CeO_2: 0-4%.~~

~~69. The method for manufacturing microcrystalline glass according to claim 63 or 64~~32. The method for manufacturing a microcrystalline glass according to claim 31, wherein the crystallization process comprises the following steps: increasing the temperature to a prescribed crystallization treatment temperature, after reaching the crystallization treatment temperature, maintaining the temperature for a certain period of time, and then cooling down, wherein the crystallization treatment temperature is

600-750°C, and ~~preferably 650°C to 700°C, and~~ the holding time at the crystallization treatment temperature is ~~0-8 hours, and preferably~~ 1-6 hours.

~~70~~33. The method for manufacturing a microcrystalline glass according to claim ~~63 or 64~~31, wherein crystallization process comprises the following steps: performing a nucleation process at a first temperature, and then performing a crystal growth process at a second temperature higher than the nucleation process temperature~~.~~

~~71. The method for manufacturing microcrystalline glass according to claim 70, wherein crystallization process comprises the following steps:~~, the first temperature is 470-630°C, the second temperature is 650-750°C; the holding time at the first temperature is ~~0-24 hours, and preferably~~ 2-15 hours; the holding time at the second temperature is 0~~-10 hours, and preferably 0~~.5-6 hours.

~~72. The method for manufacturing microcrystalline glass according to claim 63 or 64, wherein a crystal phase of the microcrystalline glass product comprises lithium monosilicate and/or lithium phosphate.~~

~~73. The method for manufacturing microcrystalline glass according to claim 63 or 64, wherein a crystal phase of the microcrystalline glass mainly comprises lithium monosilicate; lithium monosilicate has a higher weight percentage than other crystal phases, and lithium monosilicate accounts for 10-63.5% by weight of the microcrystalline glass, and preferably 15-55%.~~

~~74. The method for manufacturing microcrystalline glass according to claim 63 or 64, wherein the microcrystalline glass comprises a lithium phosphate crystal phase, and the lithium phosphate crystal phase accounts for 3-15% by weight of the microcrystalline glass, and preferably 5-12%.~~

~~75. The method for manufacturing microcrystalline glass according to claim 63 or 64, wherein a crystallinity of the microcrystalline glass is 50% or more, preferably 60% or more, and more preferably 70% or more; and/or a crystalgrain size is 50 nm or less, preferably 40 nm or less, and more preferably 30 nm or less; and/or a coefficient of~~

~~thermal expansion is 75-95×10^{-7}/K; and/or a refractive index is 1.5700-1.5800; and/or a drop ball test height is 1000 mm or more, preferably 1100 mm or more, and more preferably 1200 mm or more; and/or a Vickers hardness is 650 kgf/mm^2 or more, preferably 680 kgf/mm^2 or more, and more preferably 700 kgf/mm^2 or more.~~

~~76. The method for manufacturing microcrystalline glass according to claim 63 or 64,, wherein a haze of the microcrystalline glass with a thickness of 1 mm or less is 0.15% or less, preferably 0.12% or less, and more preferably 0.1% or less; and/or an average transmittance of the microcrystalline glass with the thickness of 1 mm or less at a wavelength of 400-800 nm is 89% or more; and/or a transmittance of the microcrystalline glass with the thickness of 1 mm or less at the wavelength of 550 nm is 91% or more; and/or an average light |B| value of the microcrystalline glass with the thickness of 1 mm or less at 400-800 nm is 0.6 or less, preferably 0.55 or less, and more preferably 0.5 or less.~~

~~77. The method for manufacturing microcrystalline glass according to claim 76, wherein the thickness of the microcrystalline glass is 0.2-1 mm, preferably 0.3-0.9 mm, more preferably 0.5-0.8 mm, and further preferably 0.55 mm or 0.6 mm or 0.68 mm or 0.72 mm or 0.75 mm.~~