CLAIMS

1. A quartz glass crucible comprising a bottom portion, a curved portion, and a straight body portion, wherein

the quartz glass crucible includes an outer layer comprising an opaque quartz glass containing bubbles therein, and an inner layer comprising a transparent quartz glass,

the outer layer is fabricated from a same type or two or more different types of raw material powder, the outer layer having two or more regions sectioned by content densities of the bubbles,

and regarding bubble content densities of two adjacent regions of the outer layer, when d_a (pcs/mm^3) is defined as a bubble content density of a region “a” having a greater content density of the bubbles, and d_b (pcs/mm^3) is defined as a bubble content density of a region “b” having a smaller content density of the bubbles, a difference $D=(d_a-d_b)/d_b$ between the bubble content densities of the two adjacent regions is 10% or more, and a boundary where the difference D between the bubble content densities is 10% or more is located in the straight body portion.

2. The quartz glass crucible according to claim 1, wherein the outer layer is fabricated from the two or more different types of raw material powder, and the regions sectioned by the content densities of the bubbles are each fabricated from the different types of raw material powder.

~~3. The quartz glass crucible according to claim 1 or 2, wherein a boundary where the difference D between the bubble content densities is 10% or more is located in the straight body portion.~~

~~4~~ 3. The quartz glass crucible according to any one of claims 1 to ~~3~~ 2, wherein the boundary between the two adjacent regions is visually distinguishable.

~~5~~ 4. The quartz glass crucible according to any one of claims 1 to ~~4~~ 3, wherein at least a part of the outer layer has a plurality of sub-layers differentiated by a difference in raw material powder in a thickness direction of the quartz glass crucible.

~~6~~ 5. The quartz glass crucible according to any one of claims 1 to ~~5~~ 4, wherein the quartz glass crucible is a quartz glass crucible for pulling a single crystal silicon for pulling a single crystal silicon from a silicon melt held in the quartz glass crucible.

~~7~~ 6. A method for producing a quartz glass crucible having an outer layer comprising an opaque quartz glass containing bubbles therein, and an inner layer comprising a transparent quartz glass, the quartz glass crucible comprising a bottom portion, a curved portion, and a straight body portion, the method comprising the steps of:

supplying a raw material powder of the outer layer into a rotating mold to form, on an inner surface of the mold, a powder layer to be the outer layer of the quartz glass crucible; and

fabricating the outer layer by heat-melting the powder layer,

wherein the powder layer is formed using a same type or two or more different types of raw material powder as the raw material powder of the outer layer,

when the powder layer is formed, a difference is made in a rotational rate of the mold so that the powder layer

is sectioned into two or more regions according to the rotational rate of the mold, and

two or more regions sectioned by content densities of the bubbles are fabricated in the outer layer by heat-melting the powder layer sectioned into the two or more regions, wherein regarding bubble content densities of two adjacent regions of the outer layer, when d_a (pcs/mm^3) is defined as a bubble content density of a region “a” having a greater content density of the bubbles, and d_b (pcs/mm^3) is defined as a bubble content density of a region “b” having a smaller content density of the bubbles, a difference $D=(d_a-d_b)/d_b$ between the bubble content densities of the two adjacent regions is 10% or more, and the rotational rate of the mold is changed in a position corresponding to the straight body portion of the quartz glass crucible.

~~8~~ 7. The method for producing a quartz glass crucible according to claim ~~7~~ 6,

wherein the powder layer is fabricated using the two or more different types of raw material powder, and

the two or more regions of the powder layer according to the rotational rate of the mold each contains the different types of raw material powder so that the regions sectioned by the content densities of the bubbles are each fabricated from the different types of raw material powder.

~~9. The method for producing a quartz glass crucible according to claim 7 or 8, wherein the rotational rate of the mold is changed in a position corresponding to the straight body portion of the quartz glass crucible.~~

~~10~~ 8. The method for producing a quartz glass crucible

according to any one of claims ~~7~~ 6 to ~~9~~ 7, wherein at least a part of the powder layer is formed to have a plurality of sub-powder-layers differentiated by a difference in raw material powder in a thickness direction.

~~11~~ 9. The method for producing a quartz glass crucible according to any one of claims ~~7~~ 6 to ~~10~~ 8, wherein the quartz glass crucible is a quartz glass crucible for pulling a single crystal silicon for pulling a single crystal silicon from a silicon melt held in the quartz glass crucible.