CLAIMS

[Claim 1]
A method for producing acetic acid, comprising
a carbonylation reaction step of reacting methanol with carbon monoxide to produce acetic acid,
an evaporation step of separating the reaction mixture obtained in the carbonylation reaction step into a vapor stream and a residual liquid stream,
a lower boiling point component removal step of separating the vapor stream by distillation into an overhead stream rich in lower boiling point component and an acetic acid stream rich in acetic acid, and
an acetic acid distillation step of distilling the acetic acid stream to purify the acetic acid, wherein the acetic acid distillation step has at least one step of distilling a crude acetic acid solution containing acetic acid and an impurity having a higher boiling point than that of acetic acid to purify the acetic acid, the at least one step of distilling the crude acetic acid solution being ~~is~~ performed under a condition involving a column bottom temperature of a distillation column of not more than 165°C and a column bottom pressure of the distillation column of less than 0.255 MPaG.

[Claim 2]
The method for producing acetic acid according to claim 1, wherein an acetic acid concentration in the crude acetic acid solution is not less than 90% by mass.

[Claim 3]
The method for producing acetic acid according to claim 1 or 2, wherein the impurity having a higher boiling point than that of acetic acid comprises at least one compound selected from the group consisting of an acetate, acetic anhydride, and propionic acid.

[Claim 4]
The method for producing acetic acid according to any one of claims 1 to 3, wherein an acetate concentration of a column bottom fraction of the distillation column is not more than 34% by mass.

[Claim 5]
The method for producing acetic acid according to any one of claims 1 to 4, wherein an acetic anhydride concentration of the column bottom fraction of the distillation column is not more than 90% by mass.

[Claim 6]
The method for producing acetic acid according to any one of claims 1 to 5, wherein a propionic acid concentration of the column bottom fraction of the distillation column is not more than 90% by mass.

[Claim 7]
The method for producing acetic acid according to any one of claims 1 to 6, wherein the distillation of the crude acetic acid solution is performed under a condition involving a column bottom pressure of the distillation column of not less than 0.01 MPaG and less than 0.255 MPaG.

[Claim 8]
The method for producing acetic acid according to any one of claims 1 to 7, wherein the acetic acid distillation step has at least one distillation step in which an acetic acid concentration in the crude acetic acid solution to be subjected to the distillation is not less than 97% by mass, and in all of such steps, the distillation of the crude acetic acid solution is performed under a condition involving a column bottom temperature of the distillation column of not more than 165°C.

[Claim 9]
The method for producing acetic acid according to any one of claims 1 to 8, wherein a material for the distillation column is at least one material selected from the group consisting of a nickel-based alloy, stainless steel, aluminum, and titanium.

[Claim 10]
The method for producing acetic acid according to any one of claims 1 to 9, wherein the column bottom fraction of the distillation column has an acetate concentration of not more than 34% by mass, an acetic anhydride concentration of not more than 90% by mass, and a propionic acid concentration of not more than 90% by mass, the column bottom pressure of the distillation column is less than 0.255 MPa, the material for the distillation column is at least one material selected from the group consisting of a nickel-based alloy, stainless steel, aluminum, and titanium, and the column bottom temperature is less than 165°C.

[Claim 11]
A method for producing acetic acid, comprising the step of distilling a crude acetic acid solution containing acetic acid and an impurity having a higher boiling point than that of acetic acid to purify the acetic acid, the acetic acid concentration in the crude acetic acid

solution being not less than 90% by mass, wherein the distillation of the crude acetic acid solution is performed under a condition involving a column bottom temperature of a distillation column of not more than 165°C and a column bottom pressure of the distillation column of not less than 0.01 MPaG and less than 0.255 MPaG.