

Claims:

[Claim 1]

A crystalline polymorph of 8-bromo-2-(1-methylpiperidin-4-ylamino)-4-(4-phenoxyphenylamino)pyrido[4,3-d]pyrimidin-5(6H)-one hydrochloride, which has peaks at diffraction angles ($2\theta \pm 0.2^\circ$) of 5.7° , 8.3° , 8.9° , 15.4° , 16.3° , 17.7° , 18.7° , 21.1° , 22.0° , 24.3° , 25.3° , 26.3° , 28.3° , and 30.8° in the X-ray powder diffraction spectrum using Cu-K α radiation.

[Claim 2]

The crystalline polymorph of 8-bromo-2-(1-methylpiperidin-4-ylamino)-4-(4-phenoxyphenylamino)pyrido[4,3-d]pyrimidin-5(6H)-one hydrochloride of claim 1, which shows a peak in the range of 240°C to 300°C when analyzed with a differential scanning calorimeter (DSC).

[Claim 3]

The crystalline polymorph of 8-bromo-2-(1-methylpiperidin-4-ylamino)-4-(4-phenoxyphenylamino)pyrido[4,3-d]pyrimidin-5(6H)-one hydrochloride of claim 1, which shows a peak in the range of 250°C to 280°C when analyzed with a differential scanning calorimeter (DSC).

[Claim 4]

A crystalline polymorph of 8-bromo-2-(1-methylpiperidin-4-ylamino)-4-(4-phenoxyphenylamino)pyrido[4,3-d]pyrimidin-5(6H)-one hydrochloride, which has peaks at diffraction angles ($2\theta \pm 0.2^\circ$) of 7.2° , 12.9° , 14.2° , 18.9° , 19.1° , 21.5° , 26.1° , and 28.9° in the X-ray powder diffraction spectrum using Cu-K α radiation.

[Claim 5]

The crystalline polymorph of 8-bromo-2-(1-methylpiperidin-4-ylamino)-4-(4-phenoxyphenylamino)pyrido[4,3-d]pyrimidin-5(6H)-one hydrochloride of claim 4, which shows a peak in the range of 180°C to 240°C when analyzed with a differential scanning calorimeter (DSC).

[Claim 6]

The crystalline polymorph of 8-bromo-2-(1-methylpiperidin-4-ylamino)-4-(4-phenoxyphenylamino)pyrido[4,3-d]pyrimidin-5(6H)-one hydrochloride of claim 4,

which shows a peak in the range of 200°C to 220°C when analyzed with a differential scanning calorimeter (DSC).

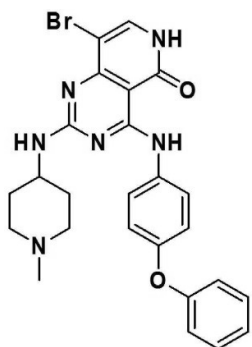
[Claim 7]

A process for preparing the crystalline polymorph of 8-bromo-2-(1-methylpiperidin-4-ylamino)-4-(4-phenoxyphenylamino)pyrido[4,3-d]pyrimidin-5(6H)-one hydrochloride of claim 1, which comprises suspending 8-bromo-2-(1-methylpiperidin-4-ylamino)-4-(4-phenoxyphenylamino)pyrido[4,3-d]pyrimidin-5(6H)-one hydrochloride in an ethyl acetate solvent.

[Claim 8]

A process for preparing the crystalline polymorph of 8-bromo-2-(1-methylpiperidin-4-ylamino)-4-(4-phenoxyphenylamino)pyrido[4,3-d]pyrimidin-5(6H)-one hydrochloride of claim 1, which comprises dissolving a compound represented by the following Formula 2 in at least one organic solvent selected from the group consisting of ethanol, methanol, isopropyl alcohol, tetrahydrofuran, and ethyl acetate; and adding hydrochloric acid and isopropyl alcohol to the solution.

[Formula 2]



[Claim 9]

A process for preparing the crystalline polymorph of 8-bromo-2-(1-methylpiperidin-4-ylamino)-4-(4-phenoxyphenylamino)pyrido[4,3-d]pyrimidin-5(6H)-one hydrochloride of claim 1, which comprises dissolving 8-bromo-2-(1-methylpiperidin-4-ylamino)-4-(4-phenoxyphenylamino)pyrido[4,3-d]pyrimidin-5(6H)-one hydrochloride in a dimethyl sulfoxide solvent; and adding an antisolvent to the solution.

[Claim 10]

The process for preparing the crystalline polymorph of 8-bromo-2-(1-methylpiperidin-4-ylamino)-4-(4-phenoxyphenylamino)pyrido[4,3-d]pyrimidin-5(6H)-one hydrochloride of claim 9, wherein the antisolvent is one or more selected from the group consisting of methyl isobutyl ketone (MIBK), ethyl acetate, isopropyl acetate, methylene chloride, toluene, tetrahydrofuran, isopropyl alcohol, acetonitrile, 2-methyltetrahydrofuran, acetone, 1-butanol, and methyl ethyl ketone (MEK).

[Claim 11]

A process for preparing the crystalline polymorph of 8-bromo-2-(1-methylpiperidin-4-ylamino)-4-(4-phenoxyphenylamino)pyrido[4,3-d]pyrimidin-5(6H)-one hydrochloride of claim 4, which comprises dissolving 8-bromo-2-(1-methylpiperidin-4-ylamino)-4-(4-phenoxyphenylamino)pyrido[4,3-d]pyrimidin-5(6H)-one hydrochloride in an ethanol solvent.