peaks at 14.44±0.2, 20.42± 0.2, 21.68±0.2, 24.38±0.2, 27.21±0.2, 29.01± 0.2, 30.82±0.2, 36.46±0.2 and 41.49±0.2; or

(b) solid crystalline polymorph Form B hydrate which exhibits an XRPD diffractogram with a characteristic major peak expressed in values of degrees 2Θ at 11.03± 0.2 and at least three characteristic peaks at 5.56± 0.2, 14.04± 0.2, 17.28± 0.2, 18.03± 0.2, 18.86± 0.2, 22.08±0.2, 23.69± 0.2, 24.12± 0.2 and 24.93± 0.2.

In another aspect, there is provided a process for the preparation of anhydrous solid crystalline polymorph Form A as defined above comprising crystallising Compound 1 from a solvent selected from acetone, butanol, ethanol, ethyl formate, isopropyl acetate, ethyl acetate, methyl acetate, nitromethane, 2-propanol, propionitrile and acetonitrile.

In another aspect, there is provided a process for the preparation of solid crystalline polymorph Form B hydrate as defined above, comprising crystallising Compound 1 from an aqueous solvent such as water or water mixed with acetonitrile.

In a first example of the disclosure there is provided Compound 1 in the form of its Form A anhydrous solid crystalline polymorph.

In a second example of the disclosure there is provided Compound 1 in the form of its Form B hydrate solid crystalline polymorph, in particular the Form B(I) hydrate solid crystalline pseudopolymorph or the Form B(II) hydrate solid crystalline pseudopolymorph.

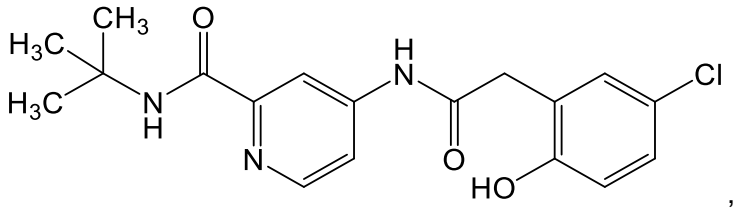
In a third example of the disclosure there is provided anhydrous solid amorphous Compound 1.

Brief description of the figures

Figure 1a is an XRPD diffractogram of solid crystalline polymorphic form A of Compound 1 in the range of 5 to 60 2-theta, step size 0.02 s (reflection mode, offset 500 counts).

CLAIMS

1. A polymorph form of N-tert-Butyl-4-[[2-(5-chloro-2-hydroxy-phenyl)acetyl]amino]pyridine-2-carboxamide (Compound 1), having the following structural formula:



,

wherein the polymorph form is:

(a) anhydrous solid crystalline polymorph Form A which exhibits an XRPD diffractogram with a characteristic major peak expressed in values of degrees 2Θ at 7.25± 0.2 and at least three characteristic peaks at 14.44±0.2, 20.42± 0.2, 21.68±0.2, 24.38±0.2, 27.21±0.2, 29.01± 0.2, 30.82±0.2, 36.46±0.2 and 41.49±0.2; or

(b) solid crystalline polymorph Form B hydrate which exhibits an XRPD diffractogram with a characteristic major peak expressed in values of degrees 2Θ at 11.03± 0.2 and at least three characteristic peaks at 5.56± 0.2, 14.04± 0.2, 17.28± 0.2, 18.03± 0.2, 18.86± 0.2, 22.08±0.2, 23.69± 0.2, 24.12± 0.2 and 24.93± 0.2.

2. The anhydrous solid crystalline polymorph Form A according to claim 1, wherein the XRPD diffractogram comprises a characteristic major peak expressed in values of degrees 2Θ at 7.25±0.2 and at least three characteristic peaks at 10.20±0.2, 14.44±0.2, 17.79±0.2, 20.42±0.2, 20.69±0.2, 21.68±0.2, 24.22±0.2, 24.38±0.2, 26.13±0.2, 27.21±0.2, 29.01±0.2, 30.82±0.2, 36.46±0.2 and 41.49±0.2.

3. The anhydrous solid crystalline polymorph Form A according to claim 1, wherein the XRPD diffractogram comprises a characteristic major peak expressed in values of degrees 2Θ at 7.25±0.2 and at least three characteristic peaks at 10.20±0.2, 14.44±0.2, 16.13±0.2, 17.79±0.2, 20.42±0.2, 20.69±0.2, 21.07±0.2, 21.68±0.2, 24.09±0.2, 24.22±0.2, 24.38±0.2, 26.13±0.2, 27.21±0.2, 29.01±0.2, 29,30±0.2, 30.82±0.2, 32.50±0.2, 36.46±0.2 and 41.49±0.2.

4. The anhydrous solid crystalline polymorph Form A according to any one of claims 2 to 3, wherein the XRPD diffractogram further comprises characteristic peaks expressed in values of degrees 2Θ at 21.68±0.2 and 29.01±0.2 and a cluster of characteristic peaks at 24.09±0.2, 24.22±0.2 and 24.3801±0.2.

5. The anhydrous solid crystalline polymorph Form A according to any one of claims 2 to 4, wherein the anhydrous solid crystalline polymorph Form A is free of other forms of Compound 1 such that at least 97% by weight of Compound 1 is present as the anhydrous solid crystalline polymorph Form A.

6. The anhydrous solid crystalline polymorph Form A according to any one of claims 2 to 5, wherein the form is micronised.

7. A process for the preparation of anhydrous solid crystalline polymorph Form A according to any one of claims 2 to 6 comprising crystallising Compound 1 from a solvent selected from acetone, butanol, ethanol, ethyl formate, isopropyl acetate, ethyl acetate, methyl acetate, nitromethane, 2-propanol, propionitrile and acetonitrile.

8. The process according to claim 7 comprising the steps of:

i. preparing a saturated solution of Compound 1 in a solvent at a temperature of 50 to 70°C;

ii. cooling the solution to a temperature of 5 to 20°C;

iii. allowing the cooled solution to stand until crystals of Compound 1 form; and

iv. isolating the crystallised product;

wherein the solvent is selected from acetone, butanol, ethanol, ethyl formate, isopropyl acetate, ethyl acetate, methyl acetate, nitromethane, 2-propanol, propionitrile and acetonitrile.

9. The process according to claim 7 or claim 8, wherein the solvent is selected from acetonitrile, ethanol, ethyl acetate, methyl acetate, butanol, 2-propanol or isopropyl acetate.

10. The solid crystalline polymorph Form B hydrate according to claim 1, wherein the XRPD diffractogram comprises a characteristic major peak expressed in values of degrees 2Θ at 11.03±0.2 and at least three characteristic peaks at 5.56±0.2, 14.04±0.2,

17.28±0.2, 18.03±0.2, 18.86±0.2, 19.34±0.2, 22.08±0.2, 23.69±0.2, 24.12±0.2, 24.93±0.2, 25.98±0.2, 26.53±0.2, 27.28±0.2 and 28.79±0.2.

11. The solid crystalline polymorph Form B hydrate according to claim 10, wherein the XRPD diffractogram further comprises characteristic peaks expressed in values of degrees 2Θ at 5.36±0.2 and 22.08±0.2.

12. The solid crystalline polymorph Form B hydrate according to claim 10 or 11, wherein the Form B polymorph is free of other forms of Compound 1 such that at least 97% by weight of Compound 1 is present as the solid crystalline polymorph Form B hydrate.

13. The solid crystalline polymorph Form B hydrate according to any one of claims 10 to 12, wherein the form is micronized.

14. The solid crystalline polymorph Form B hydrate according to any one of claims 10 to 13, wherein the solid crystalline polymorph Form B hydrate is Form B(I) pseudopolymorph and is characterised in that it undergoes unimodal dehydration.

15. A process for the preparation of solid crystalline polymorph Form B hydrate according to any one of claims 10 to 14 comprising crystallising Compound 1 from an aqueous solvent such as water or water mixed with acetonitrile.

16. The process according to claim 15 comprising the steps of:

i. preparing a saturated solution of Compound 1 in a solvent at a temperature of 60 to 80°C;

ii. cooling the solution to a temperature of 5 to 20°C;

iii. allowing the cooled solution to stand until crystals of Compound 1 form; and

iv. isolating the crystallised product;

wherein the solvent is an aqueous solvent such as water or water mixed with acetonitrile, preferably wherein the solvent is acetonitrile/water in a ratio of from 5:1 to 1:5 v/v.