WE CLAIM:

1. A crystalline form of (*R*)-2-methyl-3-(1-((4-methyl-7-morpholinopyrido[3,4-*d*]pyridazin-1-yl)amino)ethyl)benzonitrile wherein the crystalline has an X-ray powder diffraction pattern comprising at least one peak at °2θ selected from 9.2±0.2, 11.2±0.2, 18.5±0.2, 18.9±0.2, 19.4±0.2, 22.3±0.2, 22.5±0.2 and 24.5 ±0.2.

2. The crystalline form according to claim 1, wherein the crystalline form is Form F having an X-ray powder diffraction pattern comprising peaks at °2θ values of 9.2±0.2, 11.2±0.2, 18.5±0.2, 18.9±0.2, and 24.5 ±0.2.

3. The crystalline form according to claim 1, wherein the crystalline form is Form F having an X-ray powder diffraction pattern comprising two or more peaks at °2θ at 9.2±0.2, 11.2±0.2, 18.5±0.2, 18.9±0.2, 19.4±0.2, 22.3±0.2, 22.5±0.2 and 24.5 ±0.2.

4. The crystalline form according to claim 1, wherein the crystalline form is Form F having an X-ray powder diffraction pattern comprising three or more peaks at °2θ at 9.2±0.2, 11.2±0.2, 18.5±0.2, 18.9±0.2, 19.4±0.2, 22.3±0.2, 22.5±0.2 and 24.5 ±0.2.

5. The crystalline form according to claim 1, wherein the crystalline form is Form F having an XRPD pattern substantially as shown in FIG. 1.

6. The crystalline form according to claim 1, wherein the crystalline form is Form F characterized by having an endothermic peak with an onset at about 122.3°C by differential scanning calorimetry (DSC).

7. The crystalline form according to any one of claims 1-7, wherein the crystalline form is Form F having a DSC thermogram substantially as shown in FIG. 2.

8. The crystalline form according to any one of claims 1-8, wherein the crystalline form is Form F having a thermogravimetric analysis ("TGA") profile substantially as shown in FIG. 2.

9. The crystalline form according to any one of claims 1-9, wherein the crystalline form is Form F and which has about 8.5% weight loss until the onset of degradation at about 150ºC as estimated by TGA.

10. The crystalline form according to any one of claims 1-10, wherein the crystalline form is Form F having dynamic vapor sorption ("DVS") isotherm substantially as shown in FIG. 3.

11. The crystalline form according to any one of claims 1-11, wherein the crystalline form is Form F which has an observed water uptake of about 0.07% at 25 °C/80% Relative Humidity (RH), as measured by dynamic vapor sorption ("DVS").

12. A crystalline form of (*R*)-2-methyl-3-(1-((4-methyl-7-morpholinopyrido[3,4-*d*]pyridazin-1-yl)amino)ethyl)benzonitrile wherein the crystalline has an X-ray powder diffraction pattern comprising at least one peak at º2θ selected from 9.7±0.2, 10.5±0.2, 10.8±0.2, 12.4±0.2, 15.1±0.2, 18.1±0.2, 18.6±0.2, 21.6±0.2, 22.4±0.2, and 25.9 ±0.2.

13. The crystalline form according to claim 12, wherein the crystalline form is Form J having an X-ray powder diffraction pattern comprising peaks at º2θ values of 9.7±0.2, 10.5±0.2, 10.8±0.2, 12.4±0.2, 15.1±0.2, 18.1±0.2, 18.6±0.2, 21.6±0.2, 22.4±0.2, and 25.9 ±0.2.

14. The crystalline form according to claim 12, wherein the crystalline form is Form J having an X-ray powder diffraction pattern comprising two or more peaks at 9.7±0.2, 10.5±0.2, 10.8±0.2, 12.4±0.2, 15.1±0.2, 18.1±0.2, 18.6±0.2, 21.6±0.2, 22.4±0.2, and 25.9 ±0.2.

15. The crystalline form according to claim 12, wherein the crystalline form is Form J having an X-ray powder diffraction pattern comprising three or more peaks at 9.7±0.2, 10.5±0.2, 10.8±0.2, 12.4±0.2, 15.1±0.2, 18.1±0.2, 18.6±0.2, 21.6±0.2, 22.4±0.2, and 25.9 ±0.2

16. The crystalline form according to claim 12, wherein the crystalline form is Form J having an X-ray powder diffraction pattern comprising peaks at º2θ at 9.7±0.2, 10.5±0.2, 10.8±0.2, 12.4±0.2, 15.1±0.2, and 18.1±0.2.

17. The crystalline form according to claim 12, wherein the crystalline form is Form J having an XRPD pattern substantially as shown in FIG. 5.

18. The crystalline form according to any one of claims 13-18, wherein the crystalline form is Form J characterized by having an endothermic peak with an onset at about 271.5°C by differential scanning calorimetry.

19. The crystalline form according to any one of claims 13-19, wherein the crystalline form is Form J characterized by having a DSC thermogram substantially as shown in FIG. 6.

20. The crystalline form according to any one of claims 1 or 13-20, wherein the crystalline form is Form J which has a thermogravimetric analysis ("TGA") profile substantially as shown in FIG. 6.

21. The crystalline form according to any one of claims 13-21, wherein the crystalline form is Form J and which has about 1.0% weight loss until the onset of degradation at about 150°C as estimated by TGA.

22. The crystalline form according to any one of claims 13-22, wherein the crystalline form is Form J having dynamic vapor sorption ("DVS") isotherm substantially as shown in FIG. 7.

23. The crystalline form according to any one of claims 13-23, wherein the crystalline form is Form J which has an observed water uptake of about 0.31% at 25 °C/80% RH, as measured by DVS.

24. The crystalline form according to any one of claims 1-24, wherein the crystalline form is substantially free of residual organic solvents.

25. The crystalline form according to any one of claims 1-25, wherein the crystalline form is a hydrate or a dihydrate.

26. The crystalline form according to any one of claims 1-25, wherein the crystalline form is anhydrous.

27. A pharmaceutical composition, comprising a therapeutically effective amount of a crystalline form of (*R*)-2-methyl-3-(1-((4-methyl-7-morpholinopyrido[3,4-*d*]pyridazin-1-yl)amino)ethyl)benzonitrile according to any one of claims 1-27.

28. The pharmaceutical composition according to claim 28, further comprising at least one pharmaceutically acceptable excipient and/or diluent.