

## **X-RAY POWDER DIFFRACTION PATTERN of IMIPENEM MONOHYDRATE**

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Imipenem monohydrate,  $C_{12}H_{17}N_3O_4S$  (5R,6S)-3-[2-(aminomethylideneamino)ethylsulfanyl]-6-(1-hydroxyethyl)-7-oxo-1-azabicyclo[3.2.0]hept-2-ene-2-carboxylic acid was developed in 1985 as an antibacterial agent. It is used to treat a variety of infections including those of the pulmonary and urinary tracts, burns, wounds, and blood infections.

High purity Imipenem monohydrate purchased from United States Pharmacopoeia was used to produce the X-ray powder diffraction pattern. Both capillary and zero background experiments were carried out with a PANalytical X'Pert PRO Alpha-1 diffractometer. The results from these two different configurations were analyzed with both ICDD PDF-4/Organics 2007 (Database, DDView+, SLever+) and PANalytical X'Pert High Score Plus. The Indexing result with the Dicvol software gave cell parameters almost identical to those reported in the Cambridge Structural Database (CSD). However, the Rietveld analysis, using CSD crystal data as a model, indicated that zero-back ground pattern is of higher quality than that from the capillary sample. Details of these comparisons will be discussed.