

Abstract Submitted
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A reversible pressure-induced phase transition in sulfamide KAI WANG, BO ZOU, Jilin University, STATE KEY LABORATORY OF SUPERHARD MATERIALS TEAM — Sulfamide is a good case of hydrogen bonding networks with the molecular structure $\text{H}_2\text{NSO}_2\text{NH}_2$. At ambient conditions, sulfamide crystallizes into an orthorhombic structure with the $Fdd2$ space group. In this work, powder samples of sulfamide have been studied by Raman spectroscopy and synchrotron X-ray diffraction in a diamond anvil cell up to pressures of 16 GPa. The abrupt changes in Raman spectra around 5 GPa have provided convincing evidence for pressure-induced structural phase transition. This phase transition was confirmed by angle dispersive X-ray diffraction (ADXRD) experiments. On release of pressure, the observed transition was completely reversible with pronounced hysteresis. We propose that this phase transition was due to the rearrangements brought about by changes in the hydrogen bonding networks.

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