

# Synthesis and Characterization of a Three-dimensional Coordination Polymer Based on Copper(II) Nitrate and a Tridentate Tetrazole Ligand

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*Dedicated to Professor Hubert Schmidbaur on the occasion of his 75<sup>th</sup> birthday*

Tris(2-(1*H*-tetrazol-1-yl)ethyl)amine (**1**) was synthesized as gas-generating agent and characterized by vibrational (IR) and NMR spectroscopy. The energetic properties were determined by bomb calorimetric measurements along with calculations using the EXPLO5 software. Tris(2-(1*H*-tetrazol-1-yl)ethyl)amine (**1**) was used for further reactions with copper(II) nitrate to form a three-dimensional coordination polymer **3**. Both compounds were characterized by single crystal X-ray diffraction. The thermal stability was determined by DSC measurements and the physical stability by BAM standards. Tris(2-(1*H*-tetrazol-1-yl)ethyl)amine (**1**) proved to be suitable as gas-generating agent with sufficient physical and thermal stabilities. The low thermal stability of the copper complex **3** disqualifies it as potential colorant agent for pyrotechnical applications.

*Key words:* Coordination Polymer, Tetrazole, Energetic, Gas Generating