

## SYNTHESIS, STRUCTURE AND INVESTIGATION OF GERMANIUM(IV) AND COPPER(II) COMPLEXES WITH MALIC ACID AND 1,10'-PHENANTHROLINE

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**Abstract.** Two crystalline compounds of germanium(IV) with malic acid (H<sub>3</sub>Mal) and 1,10'-phenanthroline (phen) - [Ge(HMal)<sub>2</sub>(phen)]·phen·2H<sub>2</sub>O (**1**) and [CuCl(phen)<sub>2</sub>][Ge(OH)(HMal)<sub>2</sub>] (**2**) were synthesized for the first time and characterized by elemental analysis, IR spectroscopy and thermogravimetric analysis. Using single crystal X-ray diffraction, two different forms of germanium were elucidated: Ge<sup>4+</sup> (**1**) and hydrolyzed GeOH<sup>3+</sup> (**2**) with a distorted octahedron and pyramid surrounding geometry, respectively.

**Keywords:** germanium(IV) compound, malic acid, 1,10'-phenanthroline, copper(II) complex, structure.

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