Beryllium Chemistry! Why? But if needs must, what kind?

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Beryllium is the least investigated non-radioactive element. This is due to the alleged extreme toxicity of the element and its compounds.[1] Therefore, the coordination chemistry of beryllium is extremely underdeveloped.[2] To gain a more profound understanding of this chemistry we investigate beryllium coordination compounds like halide adducts to alcohols, aldehydes and carboxylic acids (Fig. 1, left)[3] as well as esterates[4] and beryllium phosphine complexes.[5]

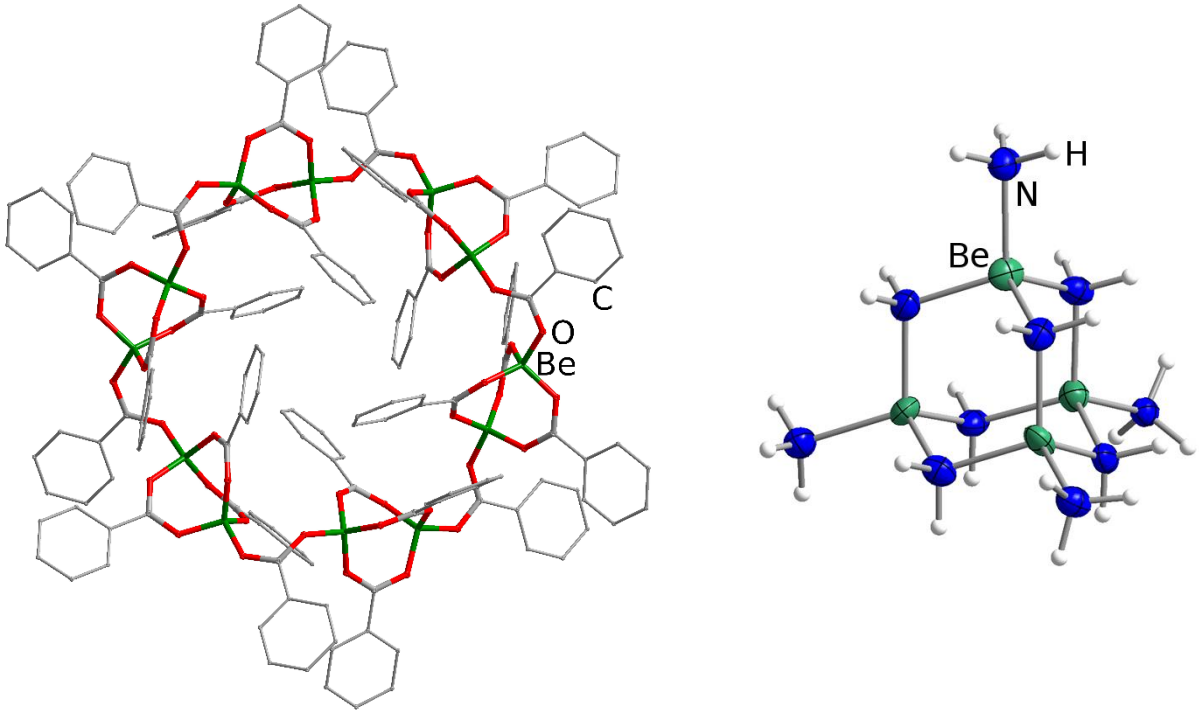

Figure 1: Wireframe model of the solid state structure of binary beryllium benzoate ($[Be(PhCOO)_2]_{12}$, left)[3] and of the complex-cation $[(NH_3)_4Be_4(NH_2)_6]^{2+}$ (right).[7] Ellipsoids are shown at 70 % probability at 100 K.

However these studies were limited to beryllium halides since these were the only starting materials easily accessible from metallic beryllium.[6] To broaden the scope of potential precursor compounds for beryllium chemistry we investigate the reactivity of beryllium metal in liquid ammonia at ambient temperature in the presence of ammono-acids and bases, which leads to the formation of various ammine and amide compounds (Fig. 1, right) of beryllium.[7]

References:

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