22nd Iranian Inorganic Chemistry Conference,
23-25 August, 2023
University of Kurdistan

# Synthesis and Characterization of $Co_2SiO_4$ as Ceramic Pigment

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There is an increasing research interest of pigments. One of the important of this pigments is nanoparticles of Cobalt(II) silicate ($Co_2SiO_4$). The Cobalt(II) silicate has olivine structure, pink color and that applied for preparation ceramic pigments, catalysts, electronic devices and biomedical systems [1,2].Various methods have been taken to prepare the $Co_2SiO_4$ at low temperature, such as the precipitation method, the hydrothermal-reaction method and sol-gel method [3]. Olivine-type $Co_2SiO_4$ is stable at high temperature and has a high Co content and consists of hexagonal closed-packed oxygen atoms with half of octahedral sites occupied by Co atoms and one-eighth of tetragonal sites occupied by Si atoms [1].

In this work, nanoparticles of $Co_2SiO_4$ was prepared by two methods including the co-precipitation method and the method of mixing metal oxides and were characterized by XRF, XRD, SEM analyses. The results show that particles of $Co_2SiO_4$ were synthesized by two methods, have particle size about 20-65 nm and a mixture of the rod-shape and spherical structures. Also, the nanoparticles of $Co_2SiO_4$ have high thermal stability and its can use as a pigment in glazing of ceramic and tile.

***Keywords***: $Co_2SiO_4$ , ceramic pigments, Olivine structure

**References**

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