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UTICAJ TERMIČKE OBRADE NA SPEKTROSKOPSKE I MORFOLOŠKE OSOBINE NANOPRAHOVA $Co_{0.9}Ho_{0.1}MoO_4$

EFFECT OF THERMAL TREATMENT ON SPECTROSCOPIC AND MORPHOLOGICAL PROPERTIES OF $Co_{0.9}Ho_{0.1}MoO_4$ NANOPOWDERS

Milena Rosić*, Maja Milošević, Uroš Čakar, Dragana Jordanov, Bojana Laban, Tijana Vlašković, Maria Čebela,
Univerzitet u Beogradu, Institut za nuklearne nauke „Vinča“, Beograd

Najlakši i najefikasniji metod prihvatljiv za kontrolu sastava i morfologije $Co_{0.9}Ho_{0.1}MoO_4$ je metoda glicin nitrata (GNP), koja je korišćena za sintezu nanostrukturiranog praha. To je obećavajući metod za kontrolu stehiometrije, homogenosti i čistoće postignute procesom sagorevanja. Metalni nitrati i glicin su pomešani u odgovarajućim stehiometrijskim odnosima da bi se pripremio tehnološki važan nanostrukturirani $Co_{0.9}Ho_{0.1}MoO_4$. Uzorci dobijeni pomenutom metodom dalje su podvrgnuti različitim metodama karakterizacije kao što su DTA, rendgenska difrakcija (XRD), infracrveni spektar Furijeove transformacije (FT-IR), spektroskopija i emisiona skenirajuća elektronska mikroskopija (FESEM). Dobijeni nanoprah je pokazao visok nivo anizotropije oblika i veličine čestica u obliku aglomerata. Takođe, primetne su razlike u mikrostrukturi i pločastim kristalima. Boja sintetizovanog uzorka se posle termičkih tretmana menja iz tamnijih u svetlije nijanse. Zbog koncentracije Co dolazi do izraženih promena dominantne talasne dužine (nm) i čistoće boje između početnog uzorka i uzorka nakon zagrevanja (1100 ^oC).

Ključne reči: *nanoprahovi; DTA; XRD; spektroskopija*

The easiest and most effective method acceptable for controlling the composition and morphology of $Co_{0.9}Ho_{0.1}MoO_4$ is the glycine nitrate method (GNP) by which the nanostructured powder was synthesized. It is a promising method for controlling the stoichiometry, homogeneity, and purity achieved by the combustion process. Metal nitrates and glycine were mixed in appropriate stoichiometric ratios to prepare technologically important nanostructured $Co_{0.9}Ho_{0.1}MoO_4$. The samples obtained by the mentioned method were further subjected to different characterization methods such as DTA, X-ray diffraction (XRD), Fourier transform infrared spectrum (FT-IR), spectroscopy, and emission scanning electron microscopy (FESEM). The resulting nanopowder showed a high level of anisotropy of the shape and size of particles in the form of agglomerates. Also, differences in microstructure and plate-like crystals are noticeable. The color of the synthesized sample changes from darker to lighter shades after thermal treatments. Due to the concentration of Co, there are pronounced changes in the dominant wavelength (nm) and color purity between the initial sample and the sample after heating (1100 ^oC).

Key words: *nanopowders; DTA; XRD; spectroscopy*

* Corresponding author: mrosic@vinca.rs
https://orcid.org/0000-0001-7093-187X
Maja Milošević: https://orcid.org/0000-0002-0985-0728
Uroš Čakar: https://orcid.org/0000-0002-7449-1960
Dragana Jordanov: https://orcid.org/0000-0001-7571-8445
Bojana Laban: https://orcid.org/0000-0002-7758-445X
Marija Čebela: https://orcid.org/0000-0001-6120-6924