

عنوان مقاله:

Synthesis, characterization and electrochemical studies of nanosized Barium Cerate

محل انتشار:

مقالات مروری و پژوهشی شیمی، دوره 7، شماره 3 (سال: 1403)

تعداد صفحات اصل مقاله: 8

نویسندگان:

.Dr Arunkumar Lagashetty - Department of Chemistry, Vijayanagara Sri Krishnadevaraya University, Ballari, Karnataka, India

.Sunilkumar Beede - Department of Chemistry, Vijayanagara Sri Krishnadevaraya University, Ballari, Karnataka, India

خلاصه مقاله:

Nano sized bimetallic oxide materials have been extensively studied worldwide because of their unique properties such as electrical conductivity, magnetic property and superior mechanical properties. The exercise objects the synthesis, characterization and studies like thermal and electrochemical study of the barium cerate ( $BaCeO_3$ ). The facial approach to preparing well dispersed nanocrystals of ( $BaCeO_3$ ) was prepared by oxalate precursor method. Barium oxalate and cerium oxalate precursors were prepared by direct dispersion of barium and cerium salt into oxalic acid solution separately. These precursors are undertaken for self-propagating combustion reaction under the influence of polyvinyl alcohol (PVA) fuel in the weight ration ۱:۵ to form  $BaCeO_3$  as required product. X-Ray diffraction (XRD) tool which is used to study the structural confirmation of prepared bimetallic oxide nanomaterials sample. The presence of a ۱۰۰% peak (۱۱۰) along with other reflections in the pattern confirms the sample. Morphological study of the sample was carried out by scanning electron microscope (SEM) tool. Bonding nature of the sample was well studied by Fourier transfer infrared (FT-IR) instrumentation. Metal confirmation in the prepared sample was identified by EDX analysis. Absorption variation was well analyzed by UV-Vis spectroscopy. Maximum absorption band at ۴۲۵ nm signifies the sample phase. Raman spectroscopic (RS) study was undertaken to view its structural organization. Dynamic light scattering (DLS) study was implemented to know the size of the sample. Cyclic voltammetry (CV) and thermal gravimetric analysis (TGA) studies are also experimented to know the electrolytic and thermal behavior of the barium cerate sample. Complete decomposition of the sample takes place at ۷۷۹.۴۱۰C records thermal stability

کلمات کلیدی:

$BaCeO_3$ , XRD, SEM, FT-IR, UV-Vis, DLS, RS, TGA, CV

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/2035989>

