The use of All Solid State battery solid state lithium batteries which use a solid electrolyte to replace the current liquid and polymer electrolytes currently used in the market for lithium ion batteries. At present the research is being carried out on lithium ceramics with a high yield especially in vitro-replacing ceramics, which follow a stoichiometry that has the crystalline form of Li1 + x + yAlxTi2-xSiyP3-YO12 with a three-dimensional structure like Nasicon Exhibits a high conductivity of ions through the structure with an ion conductivity value of 10-3 Scm-1 or higher as a function of temperature, in this sense several attempts have been made for the production of these types of materials.

Li-ion conducting materials of structure type Nasicon LiTi2P3O12 (Na, Li Super Ionic Conductor) have been synthesized by solid state reactions. The structural characterization by dust XRD shows BPO4 phases as a micro domain between two major phases due to the stoichiometry effect where this Li4Ti2P3SiB3O20 system has been optimized in a higher content of LiTi2P3O12 by an excess of Ti and P and a control during the cooling avoiding the Formation of the impure phase up to 2%.

Their preliminary evaluation by electrochemical impedance spectroscopy shows that the product obtained has an ionic conductivity value comparable to Tamb with those of this family of ionic conductors. The contents of Si and B in the material favors to some extent the obtaining of a material with ceramic characteristics, given the role of boron during the sintering process in addition to lowering the melting temperature up to ≤ 1000ºC.


Keywords: Solid electrolyte, energy, ionic conductivity.