

Abstract

Proposed here is a proof of concept prototype that permitted the exploration of using what is generally considered waste into a potentially viable building material as an energy storage solution. It has already been well established that “Hempcrete” or hemp-lime is a superior insulative building material. The objective is to use as much of the plant as possible to demonstrate its versatility and showcase new materials towards a more environmentally friendly, less toxic energy storage platform. The materials used in the brick is essentially the constituents of hempcrete, however the binder in this case is magnesium oxide instead of lime with hemp hurd/shiev aggregate which was form molded. The inner core is a closed cell semi permeable carbon foam made from hempseed husk encasing the battery material. The battery’s active materials are produced from the hurd via a carbonization process. The battery cell itself is constructed as a planar type carbon battery to achieve a 4.5 volts arrangement.