This paper presents a minimization model to reduce cost of recycling process of caustic in red mud in hydrate serving product facility, a unit of ETI Alumina Plants. Caustic is very important for ETI Alumina Plants, because it is so expensive that an optimization procedure is necessary for the cost minimization. At the same plants there is also a hydrate serving product facility. One should, therefore, determine the global cheapest mixing and recycling cost. A generic non-linear program formulation for a recycling process is available in the literature, which is employed in this study. This program helps to minimize the cost of caustic recycling process.