Some materials in organic based electronic displays are prone to degradation when exposed to water. To reduce the effect of this degradation a desiccant, Calcium Oxide (CaO) is included in encapsulated display devices. As received CaO is milled to a desired particle size, dispersed in a polymer binder, then coated onto a substrate before encapsulation. When exposed to water CaO converts to Calcium Hydroxide Ca(OH)$_2$. X-ray diffraction techniques have been used to study the conversion process and quantitate the amount of CaO/Ca(OH)$_2$ in powder and dispersed samples using the reference intensity ratio (RIR) method.

X-ray diffraction was also used to conduct in situ humidity studies to evaluate calcia dispersed in different polymeric binders. The conversion of calcia to calcium hydroxide was monitored to determine the optimum polymer for display applications.