

Dual pH-Temperature Sensitive AO14 (Poly(N-isopropylacrylamide-co-acrylic acid)) Polymer

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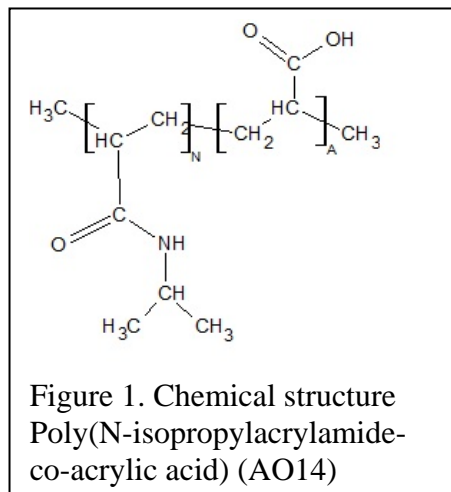
This document describes usage of PolyVivo product (AO14) for use as a dual-sensitive polymer.

Background

Poly(N-isopropylacrylamide-co-acrylic acid) (NIPAM-AA) is well regarded as a dual-sensitive polymer in regards to water solubility due to the presence of both carboxylic acid and isopropylacrylamide moieties. Basic testing was performed to ascertain if these properties also apply to PolyVivo AO14.

Testing

A series of pH buffers (0.01M Phosphate) were generated with pH's of 3.03, 6.34, and 8.04 respectively. Each of these had 1% w/v polyvivo AO14 dissolved in them over the course of 3 days at 5C. Afterwards the vials were allowed to warm to room temperature and photographed then heated to 37C in a shaking incubator and photographed as well.



Results

Figures 2 and 3 below show the results from this testing.

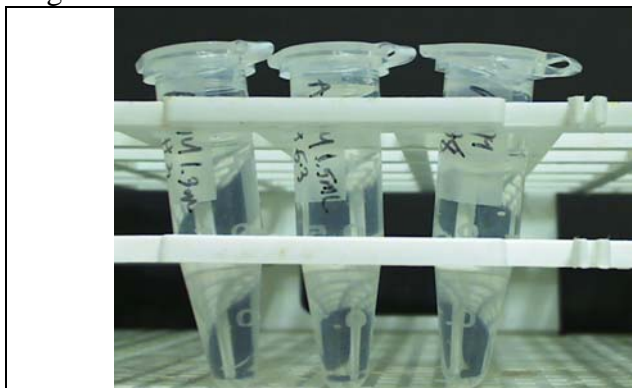


Figure 2. 1% AO14 in pH 3, 6,8 (left to right) at 25C

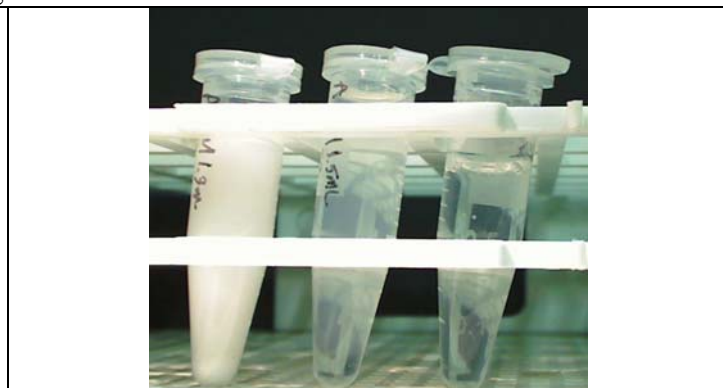


Figure 3. 1% AO14 in pH 3, 6,8 (left to right) at 37C

Conclusion

PolyVivo AO14 yields visual confirmation by relative change in opacity of sensitivity both to pH and temperature conditions in the environment.