

POTENTIAL APPLICATIONS FOR COLLOIDAL MICROGELS

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Colloidal microgels based on poly(N-isopropylacrylamide) (NIPAM) and copolymers thereof are examples of polymer colloids which are finding ever increasing commercial interest having potential utility for a range of applications.

Copolymer microgels based on poly(NIPAM) and butylacrylate have been investigated as potential controlled release systems for both oral delivery and controlled release of insulin(1) and for topical release of compounds e.g. ibuprofen and a range of paraben compounds (2).

Microgels based on poly(NIPAM) and vinyl imidazole have been prepared and their ability to bind biologically interesting hematin molecules have been quantified. The subsequent binding of other molecules including carbon monoxide to the resulting hem-microgel complex will be reported. Microgels of this type have also been investigated as potential catalytic agents.

The aggregation and heteroaggregation of microgel particles is of considerable interest to the oil industry as a means of enhancing oil recovery (3). Results from laboratory bench tests and sand pack column will illustrate how effective these materials are in propagating and blocking porous matrices under controlled conditions using temperature as a triggering mechanism.

References

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