Extending the Tool Box, Making your Polymers work for you

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The monomeric composition of colloidal microgels may be determined semi-quantitatively using a combination of NMR and Raman Spectroscopies. Examples will be provided of the analysis of a range of poly(N-isopropylacrylamide)-co-vinyl pyridine and poly(N-isopropylacrylamide)-co butyl acrylate microgels having different monomer ratios.

The controlled flocculation of colloidal microgel particles is of increasing commercial interest having found recent application in enhanced oil recovery and in the treatment of dental hypersensitivity. Examples will be provided of a range of controlled flocculation systems using colloidal microgels having both temperature and pH as a trigger to the flocculation.

Polysaccharides have found considerable application in the field of drug delivery. New drug substances are increasingly poorly water soluble and very hydrophobic so as a result getting them to interact with hydrophilic polysaccharides can be challenging. Two new strategies will be presented to enhance the "interaction" between the polysaccharides and the drugs, these will include using supercritical CO2 and chemically modifying the polysaccharides using fatty acids. The degree of substitution and the length of the fatty acid chain influence the extent of enhanced drug binding.