

## REACTIVE COLLOIDS IN BIOMEDICAL DIAGNOSTICS

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Polymer latexes have received an increasing interest especially in the biomedical domain, due to the versatility of the many heterophase polymerization processes for elaborating well-defined microspheres of various particle sizes and surface reactive groups. The main objective of our research is to synthesize latexes bearing reactive or functional groups for specific and non-specific biomolecules immobilization for diagnostic and analytical purpose. To target such objectives, our research is focused on the following key points: (i) Synthesis of reactive latex particles is devoted to the elaboration of hydrophobic, hydrophilic colloidal particles via emulsifier-free radical polymerization. The preparation of well adapted polymer particles needs the investigation of the formulation and the polymerization kinetics. Then, various polymerization processes are performed in order to prepare microgel, core-shell and smart latex particles bearing well defined properties. (ii) The immobilization (*specific and non-specific adsorption and/or covalent grafting*) of biomolecules is of paramount importance in biomedical field and in molecular biology. The biomolecules immobilization is currently investigated by investigating the influence of various physico-chemical parameters (i.e. pH, salinity, temperature etc...). (iii) Finally, the elaborated particles and particle-biomolecules conjugates are evaluated by investigating the specificity, the stability and the sensitivity in biomedical diagnostic.

The aim of this presentation, is to report on the preparation of reactive colloids and their applications in biomedical diagnostic from basic agglutination tests to more complex utilizations