

CLAY MINERAL–POLYMER INTERACTIONS: COLLOID CHEMICAL ASPECTS

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The colloidal state is an important property in small- and large-scale applications of bentonite dispersions. The clay minerals can be dispersed forming stable sols, coagulated or flocculated in form of more or less dense flocs, or stiffen to gels. Phase diagrams (salt concentration vs. bentonite content) of bentonites in water are characterised by domains of sol, coagulated states, and two types of gels (“repulsive” and “attractive” gels). The addition of polymers provides a

simple method to increase or decrease the different domains, i.e. to induce a wanted state (sol, coagulated, flocculated, or gel) at a wanted bentonite content. Examples are given for bentonites in the presence of cationic poly(ethylene oxides) (macromolecules with a cationic charge at the ends). The phase diagrams of the bentonite dispersions reveal increasing steric stabilisation against flocculation by increasing poly(ethylene oxide) addition.