Course: Colloid Chemistry — credits: 5

Course code	CHVH24COLLOIDCHM
Name	Colloid Chemistry
Study year	2026-2027
ECTS credits	5
Language	Dutch, with parts in English
Coordinator	L. Bosgraaf
Modes of delivery	Practical / Training Project-based learning Tutorial
Assessments	Chemometrie 1 Practicum - Other assessment Chemometrie 1 Theorie - Written, organised by STAD examinations

Learning outcomes

You define and describe colloids and master the basic concepts of colloid chemistry.

You describe various methods used for making colloid systems and for determining the particle size of colloids.

You describe and calculate the various forces (gravity, heat movement and intermolecular forces) operating in colloidal systems.

You describe and calculate the influence of surfactants on the properties of a solution.

You apply the knowledge gained about making and measuring colloidal systems in a practical situation and report the results according to the applicable guidelines.

You determine the surface tension and critical micelle concentration of various liquids in a chemical laboratory and report the results according to the applicable guidelines.

Within a project group of fellow students, you give advice to a company based on a current sustainability issue (Chemport Challenge).

Content

In this module we are going to look at so-called colloidal systems: heterogeneous mixtures containing particles between 1 nanometer and 1 micrometer in size. These include emulsions, suspensions, sols, foams and the like. Colloids play and major role in everyday life and are found in creams, sauces, paints, cosmetics, gelatin, milk and many other products. We are going to look at 3 forces acting on colloid particles, namely gravity, heat motion (Brownian motion) and the intermolecular forces acting on the interfaces. The interplay of these forces creates the unique properties of colloids. In this module you will also learn how to influence these forces in the technology of colloidal systems and how to make measurements on colloids. Theory (3 EC) is tested with a written digital exam. The module also includes 2 days of practicals (2 EC) in which surface tension, critical micelle concentration and emulsions will be discussed.

In addition, the Chemport Challenge also takes place in this module. During the Chemport Challenge you will visit chemical companies at Chemiepark Delfzijl and Eemshaven to see what chemistry looks like in practice and on an industrial scale. You will then be explained a current problem (challenge) by one of the companies and, together with fellow students in a project group, you will make a recommendation on this to the company.

Included in programme(s)

Chemistry

School(s)

Engineering, Life Sciences & ICT

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