

Physical chemistry

Introducing

Description

The program includes:

Definitions and properties of interfaces (liquid-gas, liquid-liquid, solid-liquid).

Measurement and role of surface tensions.

Capillarity and related laws (Jurin, Young-Laplace).

Wettability and contact angle.

Adhesion work and Young-Dupré laws.

Surfactants: structure, classification, micelles, applications.

Intermolecular and colloidal forces (Van der Waals, electrostatic, hydrophobic).

Colloidal stabilization/destabilization (DLVO theory, polymers, flocculation).

Applications: emulsions, foams, detergents.

Basic knowledge of molecular kinetics and intermolecular interactions.

General understanding of solution chemistry (solubility, polarity, pH).

Évaluation

L'évaluation des acquis d'apprentissage est réalisée en continu tout le long du semestre. En fonction des enseignements, elle peut prendre différentes formes : examen écrit, oral, compte-rendu, rapport écrit, évaluation par les pairs...

Practical info

Location(s)

 Toulouse

Objectives

The course aims to provide an understanding of the physical chemistry of surfaces and colloids: surface tension and energy, capillarity, wettability, adhesion, the role of surfactants, molecular interactions, and applications to colloids, emulsions, foams, and detergents.

Necessary prerequisites

Fundamentals of thermodynamics and physical chemistry.