Liquid foams and emulsions: generation, stability and properties

Scientific and technical environment of the training course

Institut Charles Sadron
http://www.ics-cnrs.unistra.fr
Institut Carnot MICA
http://www.carnot-mica.com

COURSE DIRECTORS

Wiebke DRENCKHAN
Senior Researcher
UPR 22
Arnaud SAINT-JALMES
Senior Researcher
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LOCATION
STRASBOURG (67)

ORGANISATION
3 days
Training course in English
From 5 to 12 attendees

TEACHING METHODS
- Alternating courses (70 %) and practical work / demonstrations (30 %)
- Practical work in sub-groups of maximum 3 trainees with 1 speaker per sub-group

Throughout the training, continuous exchanges with the teachers will allow the trainee to evaluate the knowledge acquisition.

TRAINING FEES
1500 Euros

AT THE END OF THE TRAINING COURSE
Satisfaction survey from trainees
A certificate of training is delivered.

COURSE DATE
Ref. 22 114 : from Wednesday 11/05/22 to Friday 13/05/22

OBJECTIVES

- Acquire fundamental physico-chemical concepts concerning the production of foams/emulsions, their structure, their stability and their macroscopic properties (especially their rheology)
- Acquire a global and multiscale vision of liquid foams and emulsions
- Become acquainted with the key techniques used for the generation and characterisation of interfaces, thin films, foams and emulsions
- Master the interplay between "physical" and "chemical" parameters in foams/emulsions
- Develop good reflexes to solve problems dealing with foams/emulsions

AUDIENCE

Technicians, engineers and researchers working with foams or emulsions across all fields (pharmaceutical or cosmetic sector, food industry, fire fighting, household care products, oil recovery, optimisation of solid foams, etc.)

In order to adapt the content of the training course to the expectations of trainees, a survey downloadable from our website should be completed and returned at the time of registration.

PRE-REQUIREMENT

Minimum bachelor-level in physics or chemistry

TRAINING PROGRAMME

- Gas/liquid and liquid/liquid interfaces
- Surfactants at interfaces and in thin liquid films
- Generation of foams/emulsions
- Structure of foams/emulsions
- Stability of foams/emulsions & antifoams
- Rheology of foams/emulsions
- Optimisation of foams/emulsions by formulation
- Open exchanges

Trainees may bring a sample which will be studied for educational purposes, subject to the prior agreement of the scientific manager of the training course.

First day : from 10:00 am to 05:00 pm
Second day : from 09:00 am to 05:00 pm
Last day : from 09:00 am to 04:00 pm

EQUIPMENT

- Techniques for measuring interfacial tension and interfacial rheology (pendant drop technique, Wilhelmy technique, interfacial shear rheometer, oscillating bubble technique)
- Techniques for the generation of foams and emulsions (rotor-stator, double syringe, mixer, shaving foam, microfluidics, etc.)
- Characterisation techniques of individual films at the bubble/drop scale (thin film balance, vertical film drainage)
- Characterisation techniques for foams/emulsions (imaging, conductimetry, rheology)