This course is presented by Dennis Forte & Associates in conjunction with the University of Applied Sciences and Arts, Western Switzerland Valais (HES-SO Valais).

Extrusion Scale-Up & Process Transfer

SWITZERLAND 7-8 JULY 2022

Sponsored by

CLEXTRAL Extrusion Expertise Excellence

Overview

This course builds on information presented in our three-day extrusion courses. It covers techniques to scale-up an extrusion process - eg from pilot scale to production scale - or to transfer a process from one type of extruder to another. The extruders may be either the same or different makes of extruder.

Following a brief review of extrusion theory, the program discusses methods to quantify both material rheology and the extrusion process. This is then used as a basis for a planned approach to scale-up and/or process transfer. Analysis and scale-up of extrusion dies are covered as separate topics. Worked examples - taken from actual industrial scale-up experience - are used to demonstrate the methods.

The aim is to provide participants with a science-based approach to scale-up and process transfer, but which applies to real industrial processes. The limitations inherent in scaling the process is also discussed, along with how small-scale trials should be planned so that processes are more scalable.

Course Content

Topics covered include -

A Review of Extrusion Processing Theory
- › The Four Golden Rules

Development of Optimal Extruder Profiles

An Introduction to Dimensional Analysis

Quantification of Material Rheology
- › Ingredients and the Finished Product

Quantification of the Extrusion Process
- › The Mass & Energy Balance
- › Material Rheology
- › Weighted Average Total Strain (WATS)

Scale-up & Process Transfer

Modeling the Degree of Cook in Extruders

Use of Dimensional Analysis
- › The Operational Characteristics of Extruders

Design and Evaluation of Extrusion Dies

Modelling of the Direct Expansion Process

Modelling of a Sheeting Die

***Note** — This is an advanced program, considerable prior knowledge of participants is assumed - we recommend that participants should have previously attended one of our 3-day extrusion courses as essential background to this more advanced program. Participants should also expect significant mathematics in the methods presented for scale-up and process transfer.*

Venue

HES-SO Valais Wallis Institute of Life Technologies Campus Energypolis Rue de l'Industrie 19 CH - 1950 Sion Switzerland

Registration Fee

975 Euro per person (approx. CHF1035, GBP825)

Registration fees are set in Euro and will vary when converted to other currencies according to fluctuations in exchange rates.

A **10% discount** applies for registrations received by **20 May 2022** and paid within 14 days.

An **additional 10% discount** applies for those attending consecutive courses.

An **additional 5% discount** applies for 3 or more course registrations received together from the same company.

Discounted fees apply for PhD students and non-profit research organisations - see course webpage for details.

Registration fee includes PDFs directly related to the presentations, as well as lunches, morning & afternoon refreshments.

REGISTRATIONS CLOSE 17 JUNE 2022

It is planned for the course to be presented on-site. If Covid-19 restrictions prevent this then the course will revert to live streaming.

Register online via course webpage, or send participant details (name, company, address, email, ph) to training@fie.com.au.

Course Enquiries

Dennis Forte +61 416 261 726 forte1@iinet.net.au

Course Presenter

Dennis Forte, a chemical engineer with extensive experience in extrusion processing and die design, including breakfast cereals, extruded snacks, pasta, and confectionery. Dennis has worked with a wide variety of companies using extrusion technology.

The Institute of Life Technologies at the University of Applied Sciences and Arts Western Switzerland Valais (HES-SO Valais) offers applied research & development. Projects are carried out by research groups of principal investigators and senior research associates. The combination of complementary scientific skills and industry experience generates unique synergies and new possibilities. HES-SO Valais has extensive pilot plant facilities including a twin-screw extruder.

HES-SO Contact Michael.Beyrer@hevs.ch

Books by the Course Presenter

Available to course participants at 20% discount to list price. Or order online from fie.com.au/books or major booksellers.

› Full Planned Program available from course webpage.

Dennis Forte and Associates. Pty. Ltd
Consulting Chemical and Food Process Engineers

Hes·so VALAIS WALLIS
School of Engineering