Ludovic® Training – v7.2

Training targets

The goal of this training is to provide to the attendees all the knowledge and tools for being self-efficient in the use of the Ludovic® software (dedicated to corotating twin screw extruders).

This training is designed for the Ludovic® last release.

Audience

This training is dedicated to the process engineers, extrusion technicians, researchers and teachers who are dealing with experiments and trials on a corotating twin screw extruders.

Training program

This training is set on 2 days.

- Day one : Initial training
  - Basis use of the Ludovic® software and principles functioning
- Day two : Advanced training and practicals
  - Performing experiments plans and optimizing simulations

Sciences Computers Consultants
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SAS au capital de 49200 Euros RC Saint-Etienne B 390 220 119

Day one – Initial Training

The day 1 is dedicated to the basis of the Ludovic® software. It is especially designed for getting a better understanding of the computation principles and thus, optimizing the use of the software.

Introduction : the twin screw extrusion process	Ludovic® Principles	Physics equations and models	
		Ludovic® rules and assumptions	
		Advantages of this method	
Creating/Managing first simulations	The extruder geometry : screw and die components	Design of the screw elements	
		Assembly of the screw	
		Managing screw libraries	
	The Product definition	The material characteristics	
		A few rheology with the Identify Module	
		Dealing with complex recipes	The automatic mixing laws in Ludovic®
	The operating conditions definition	Screw speed and flow rate	
		The barrels thermo-regulation	Using the ACI for an automatic *h* definition
The Results	Analyzing the thermo-mechanical evolution of the product	F(*x*) Results	
	Analyzing the mixing efficiency	The Global Results	The Mixing efficiency matrix
	Time results	RTD results and f(*t*) Results	
Ludovic® software management	The Database Manager	What is a Database	Creating a new Database
			Managing and updating databases
	Practical	The simulation definition	Building a complete profile and simulation from a datasheet

Day Two – Advanced training and practicals

The second training day is fully dedicated to the set up and analysis of **practical experiments**. It is also an opportunity for getting into the advanced features of Ludovic®.

<table>
<tr><td rowspan="7">Advanced use of the Ludovic® software : the Design of Experiments (DoE)</td><td rowspan="3">Defining a virtual Design of Experiments</td><td>What is a DoE</td><td>Model, interest and analysis</td></tr>
<tr><td colspan="2">The key parameters definition</td></tr>
<tr><td colspan="2">The Results selection</td></tr>
<tr><td>How to screen a large functioning domain</td><td>The DoE analysis</td><td>3D, 2D analysis and criteria</td></tr>
<tr><td>PRACTICAL</td><td colspan="2">Analyzing the material process sensitivity</td></tr>
<tr><td rowspan="2">PRACTICAL</td><td rowspan="2">Scale Up application</td><td>Using the Ludovic® wizards</td></tr>
<tr><td>Applying the DoE for Scale Up issues</td></tr>
<tr><td rowspan="2">Advanced use of the Ludovic® software : the computation options</td><td rowspan="2">Definition of computation options</td><td>Required input data</td><td>Results analysis and post-process</td></tr>
<tr><td colspan="2">Melting, expansion, devolatilization, Glass Fibers, particles erosion…</td></tr>
</table>

Cases considered the second day are real application cases. This way user generates data for populating its own Ludovic software database.

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Training organization

Specific conditions

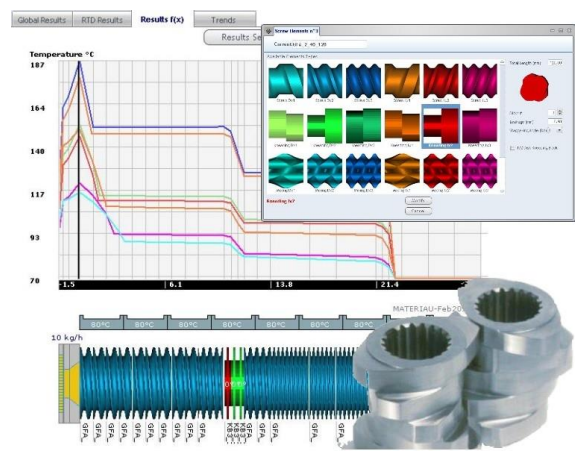
This program has been established for a training on the SCC site. Temporary licenses and work documents are provided by SCC to the attendees.

It remains to the attendees to come with their own laptop.

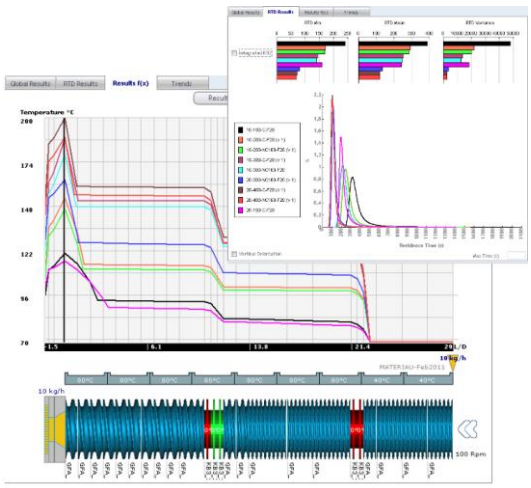
Training consultant

The Ludovic® training is provided by Corentin RIVAUX, our extrusion applications engineer at SCC. He is in charge of the Ludovic® development, customers support and consulting actions. He is also involved on the National or European Research Project dealing with extrusion topics (glass and naturals fibers, nano-composites, mixing index…).

Corentin RIVAUX closely works with our scientific director, Dr Lucas SARDO.



Definition of screw elements in Ludovic®



Comparison of results in Ludovic®

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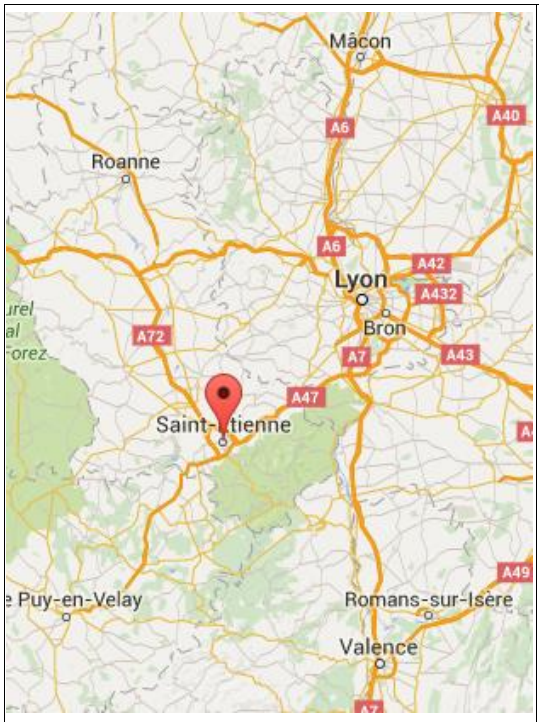
Place and access

The Ludovic® training takes place on the SCC site :

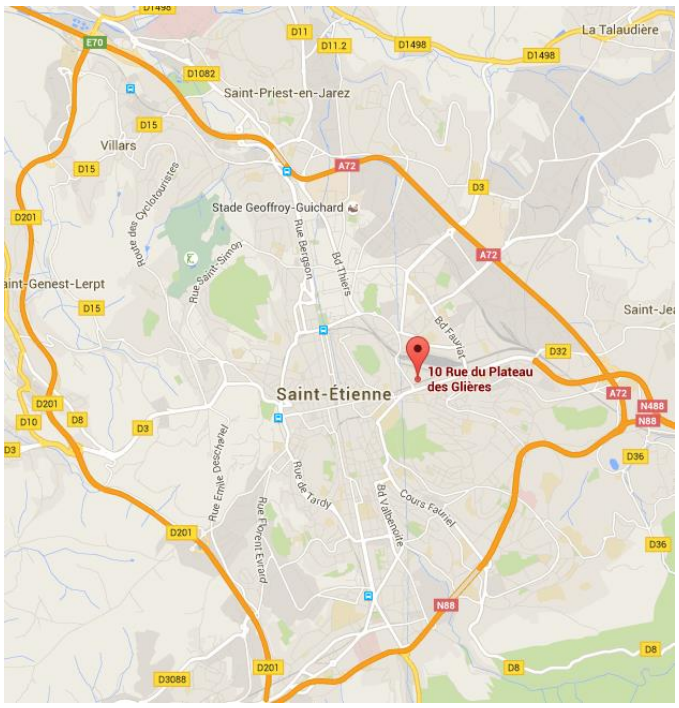
Sciences Computers Consultants
10 rue du plateau des glières
F-42000 Saint Etienne

Access

The SCC headquarters are located in front of the Chateaucreux trainstation.



Saint Etienne in the Rhone Alpes area



SCC offices in the Saint Etienne city map

Hotels

Many hotels are located two-minute walking from the train station and SCC offices.

Here are some recommended addresses :

Hôtel	*Adresse*	*CP*	*Tel.*	*Site*
Hôtel IBIS Styles Chateaucreux	35 avenue Denfer Rochereau	42000 Saint Etienne	04 77 37 90 90	Lien
Hôtel TERMINUS du FOREZ	31 avenue Denfer Rochereau	42000 Saint Etienne	04 77 32 48 47	Lien
Hotel IBIS Budget	4 rue du plateau des Glières	42000 Saint Etienne	04 28 04 21 00	Lien
Hotel Novotel	5 cours Antoine Guichard	42000 Saint Etienne	04 28 04 10 90	Lien
Hôtel KYRIAD	77 rue de la Montat	42000 Saint Etienne	04 77 21 12 21	Lien

Information and contact

For more information, contact SCC :

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