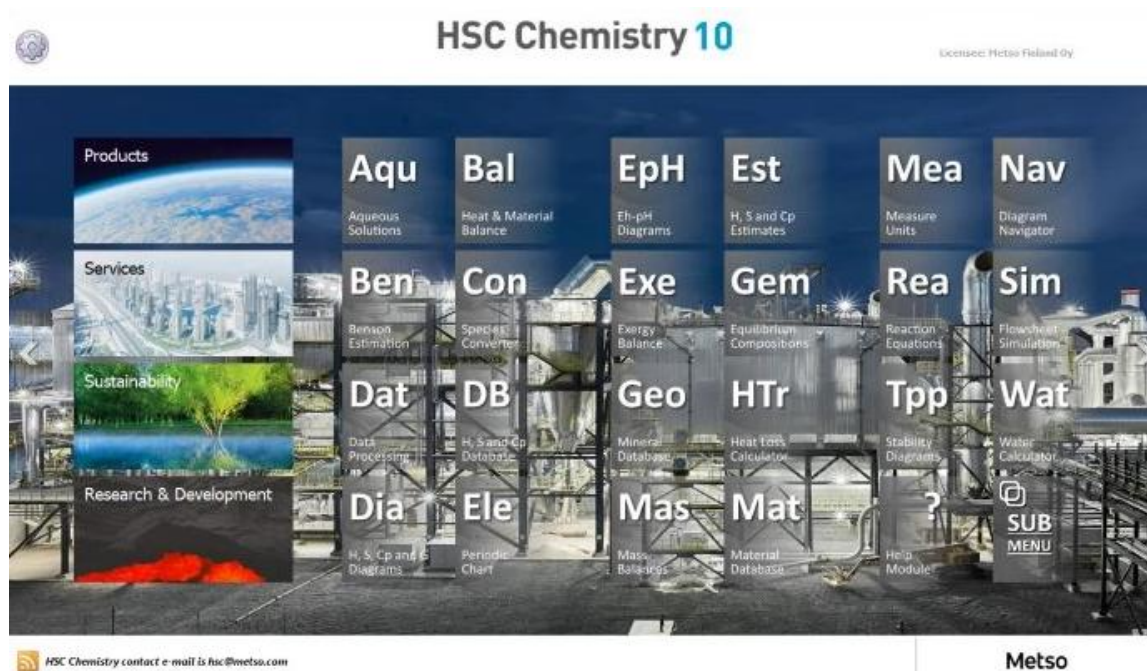


HSC Chemistry 10 Public Course Event June 1-11, 2026



Get more out of your HSC software and join the HSC Course Event onsite in Espoo, Finland on June 1 – 11, 2026. Confirm your reservation by May 17, 2026 at the latest.

1. Outline

HSC Course Event includes eight different courses focused on the **HSC Chemistry 10** software. We recommend everyone to start with the HSC Basic & Equilibrium as well as HSC Sim Basics course options, since this information is needed in the more advanced Mineral Processing, Hydrometallurgy, and Pyrometallurgy course options. It is also possible to participate on the Course Event online via Teams; however, we highly recommend participating onsite to maximize the learning.

| Course | Duration | Dates | Lecturer |
|--|----------|--------------------|---|
| 1. HSC Basic & Equilibrium | 1 day | June 1, 2026 | Matti Hietala / Antti Roine |
| 2. HSC Sim Basics | 1 day | June 2, 2026 | Tuukka Kotiranta / Matti Hietala / Cesar Araujo |
| 3.a HSC Sim Pyro | 2 days | June 3 - 4, 2026 | Jonna Piironen / Matti Hietala |
| 3.b HSC Sim Hydro | 2 days | June 3 - 4, 2026 | Tuukka Kotiranta / Cesar Araujo |
| 4. HSC Sim Pyro & Hydro Dynamic | 1 day | June 5, 2026 | Tuukka Kotiranta / Cesar Araujo |
| 5. HSC Sim Mineral Processing | 2,5 days | June 8 - 10, 2026 | Caroline Izart |
| 6. Mineral Processing Mass Bal & Model fit | 1 day | June 10 – 11, 2026 | Caroline Izart |
| 7. HSC Geo & Liberations | 0.5 day | June 11, 2026 | Jussi Liipo |

2. Arrangements for Course Event

Onsite Course Event in Matinkylä, Finland

1) Implementation for **Onsite Course Event**

The Supplier will organize appropriate facilities including auditorium devices.

There will be an internet connection available to the participants in the facilities.

The Supplier will provide the participants with the following training materials and software which will be available in connection the training days:

- Workbooks in electronic format (pdf files) and (printed copies)
- Training and exercises in electronic format and printed copies
- HSC software with thirty (30) days (the License Period) course license for the participants. However, during the Course Event the participants may also participate with their own separately licensed HSC Chemistry 10 software.

The course license terms for the software are set out in a document known as “Particular Conditions for Licensing HSC Training Software – Metso – Version 1/2024”.

The course conditions are set out in a document known as “General Conditions For HSC Chemistry Training Courses Metso Version 1/2025”.

The Supplier's lecturer(s) will hold the agreed trainings to the participants.

The participants having completed the training are entitled to receive course certificates.

2) Technical Requirements for **Onsite Course Event**

The Customer shall ensure at its own cost and risk that the participants will have available for the Courses the following devices and software:

- laptops with Windows 8 or newer (64 bit)
- Intel or AMD x64 processor with AVX2 instruction set support
- laptops with at least 8 GB memory and at least 10 GB free hard disk
- Full HD or higher resolution display
- external mouses for laptops
- functionable Microsoft Teams on laptops
- Excel Add-in requires 64-bit Excel
- LCA Evaluation compatible with Open LCA 2.1 or newer
- **However, the software product(s) is/are not compatible with ARM systems, such as Qualcomm Snapdragon-powered laptops or Mac computers with Apple silicon (M-series SoC)**
- HSC software installed and activated in the participants' laptops by the Customer. HSC software is in the English language. The Supplier will deliver HSC software as well as the activation key and instructions to the Customer at least two (2) weeks prior to the beginning of the Courses

3) Language for **Onsite Course Event**

The Supplier will carry out the Courses in English.

If the Customer's participants will need any interpreter or translator, the parties shall agree on the necessary arrangements prior to performances of the Courses. In all events the Customer shall be responsible for any incurred costs resulting from assistance of the interpreter or translator.

4) Lunch and Refreshments for **Onsite Course Event**

April 20, 2026

The Supplier will provide the present participants with some lunch and refreshments during the training course days.

Online Courses via Microsoft Teams

1) Implementation for **Online Course Event**

The Supplier will provide the participants with the following training materials and software which will be available in **connection** the training days:

- Workbooks in electronic format (pdf files)
- Training and exercises in electronic format
- HSC software with thirty (30) days (the License Period) course license for the participants. However, during the Course Event the participants may also participate with their own separately licensed HSC Chemistry 10 software.

The course license terms for the software are set out in a document known as “Particular Conditions for Licensing HSC Training Software – Metso – Version 1/2024”.

The course conditions are set out in a document known as “General Conditions For HSC Chemistry Training Courses Metso Version 1/2025”.

The Supplier's lecturer(s) will hold the agreed trainings to the participants.

The participants having completed the training are entitled to receive course certificates.

2) Technical Requirements for **Online Course Event**

The Customer shall ensure at its own cost and risk that the participants will have available for the Courses the following devices and software:

- laptops with Windows 8 or newer (64 bit)
- Intel or AMD x64 processor with AVX2 instruction set support
- laptops with at least 8 GB memory and at least 10 GB free hard disk
- Full HD or higher resolution display
- external mouses for laptops
- functionable Microsoft Teams on laptops
- functionable internet connections for using Microsoft Teams
- Excel Add-in requires 64-bit Excel
- LCA Evaluation compatible with Open LCA 2.1 or newer
- **However, the software product(s) is/are not compatible with ARM systems, such as Qualcomm Snapdragon-powered laptops or Mac computers with Apple silicon (M-series SoC)**
- HSC software installed and activated in the participants' laptops by the Customer. HSC software is in the English language. The Supplier will deliver HSC software as well as the activation key and instructions to the Customer at least one (2) weeks prior to the beginning of the Courses

3) Language for **Online Course Event**

The Supplier will carry out the Courses in English.

If the Customer's participants will need any interpreter or translator, the parties shall agree on the necessary arrangements prior to performances of the Courses. The Customer shall be responsible for organizing the interpreter or translator as well as for the incurred costs.

3. Pricing and registration

The price for the courses is 600 EUR per day per participant. 25.5% value added tax (VAT) will be added to the price. The price is the same for both onsite and online participants.

| Course | Price |
|--|----------|
| 1. HSC Basic & Equilibrium | 600 EUR |
| 2. HSC Sim Basics | 600 EUR |
| 3.a HSC Sim Pyro | 1200 EUR |
| 3.b HSC Sim Hydro | 1200 EUR |
| 4. HSC Sim Pyro & Hydro Dynamic | 600 EUR |
| 5. HSC Sim Mineral Processing | 1500 EUR |
| 6. Mineral Processing Mass Bal & Model fit | 600 EUR |
| 7. HSC Geo and Liberations | 300 EUR |

Registration happens online at <http://www.hsc-chemistry.com/webshop&subcat=8>. The last day for registration is **May 17, 2026**. In the registration phase, participants need to choose whether they attend onsite or online.

No refunds will be made for cancellations unless the whole course is cancelled by the organizer.

4. Daily schedule and venue

| Time | Topic |
|---------------|------------------|
| 8:30 | Breakfast |
| 9:00 | Course starts |
| 10:30 - 10:45 | Coffee break |
| 10:45 | Course continues |
| 12:00 - 13:00 | Lunch break |
| 13:00 | Course continues |
| 14:30 - 14:45 | Coffee break |
| 14:45 | Course continues |
| 16:30 | Course ends |

Metso Finland Oy, Espoo Office in Matinkylä

June 1-11, 2026

Metso Finland Oy, Espoo Office in Matinkylä

[\(Metso - Google Maps\)](#)

Rauhalanpuisto 9,
FI-02230 Espoo, Finland

April 20, 2026

We kindly ask you to wait in the main lobby for guidance to the classrooms.

| Course | Classroom |
|--|--|
| 1. HSC Basic & Equilibrium | C302 Auditorium, Rauhalanpuisto 9 |
| 2. HSC Sim Basics | C302 Auditorium, Rauhalanpuisto 9 |
| 3.a HSC Sim Pyro | TBA Rauhalanpuisto 9 |
| 3.b HSC Sim Hydro | TBA Rauhalanpuisto 9 |
| 4. HSC Sim Pyro & Hydro Dynamic | E802 Neptunium, Rauhalanpuisto 9 |
| 5. HSC Sim Mineral Processing | C301 Antimony, Rauhalanpuisto 9 |
| 6. Mineral Processing Mass Bal & Model fit | C301 Antimony, Rauhalanpuisto 9 & E802 Neptunium, Rauhalanpuisto 9 |
| 7. HSC Geo and Liberations | E802 Neptunium, Rauhalanpuisto 9 |

5. Hotels, flights, and local info

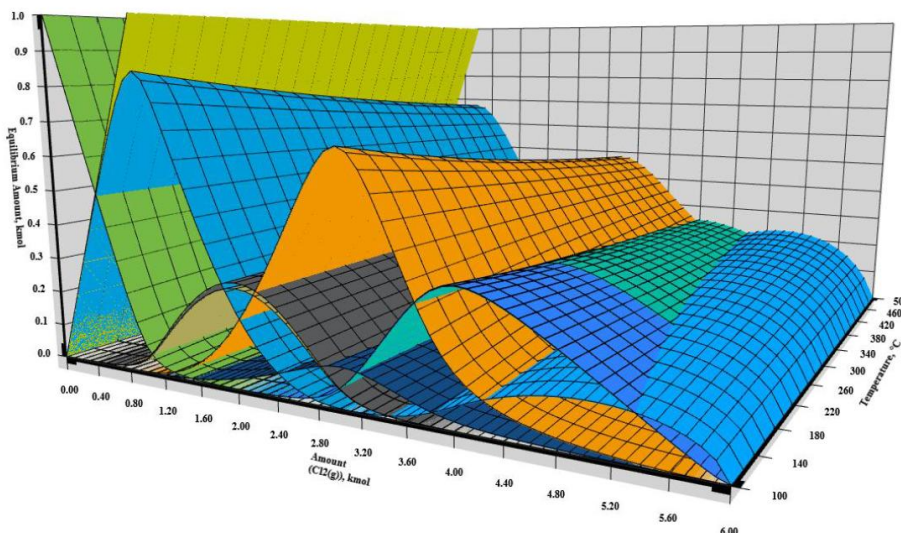
Please make your own hotel and flight reservations.

Public transportation is good in Capital Region of Finland. All the different tickets (bus, train, tram, or metro) need to be purchased from the HSL mobile application which you need to download beforehand (<https://www.hsl.fi/en>). Metso Finland Oy Espoo Office can be reached easily from airport: first train to Helsinki Central Railway Station, from where metro to Metso Finland Oy Espoo Office (metro towards Matinkylä / Kivenlahti).

We have listed all our recommended hotels, restaurants, and sightseeing in the following Google maps: https://www.google.com/maps/d/edit?mid=1KA9sVi4tw4_WTp1-V6J7Xvy312lxkmGg&usp=sharing

6. Courses

6.1. HSC Basic and Equilibrium



HSC Basic course focuses on general information, which is needed to specify a practical problem in the 23 calculation modules, run the calculations, and analyze the results. Participants will learn what can be done with the HSC package and some ideas on what cannot be done. These skills are also needed in the more advanced HSC Sim Hydro, Sim Pyro, and Sim Mineral Processing courses.

Most HSC users utilize perhaps only 1-2 of the HSC calculation modules. This course will help users to understand the capabilities of all 23 calculation modules and 12 databases. This course also provides an understanding of the potential applications of HSC.

The target of the Basic HSC Course is to teach the participants what can be done with the HSC package and what cannot be done. The course will focus on the most common questions and problems raised by HSC users over the last few years.

This course gives an overview of the basic HSC operation principles and the major procedures needed to solve more complicated problems with the HSC software. The course will also illustrate thermochemistry application possibilities in practical problems.

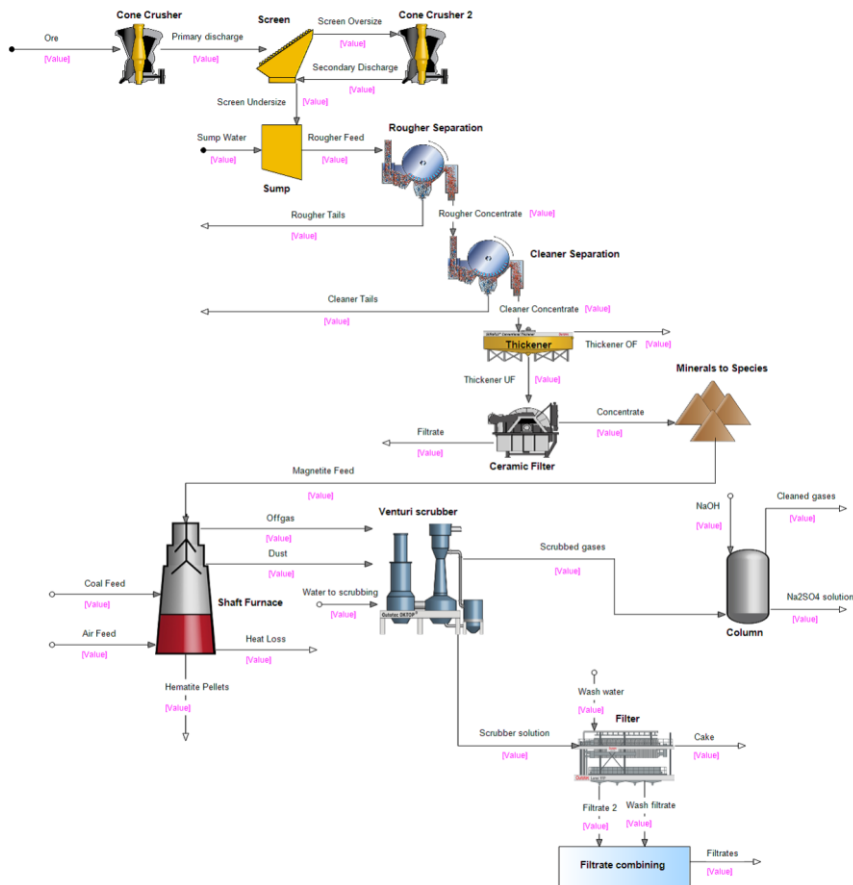
HSC Basic contents:

- General information required in most of the HSC modules
- Basic concept, HSC internal structure, user interface issues, etc.
- Some basic principles of thermochemistry related to HSC
- Internal structure of the HSC databases, chemical formula syntax, etc.
- Specification of phases and species, etc.
- Demonstration of the HSC calculation modules with workshop examples

HSC Equilibrium contents:

- Equilibrium calculations with HSC Gem module
- Exercise examples
- Excel Add-in functions
- Thermodynamics

6.2. HSC Sim Basics



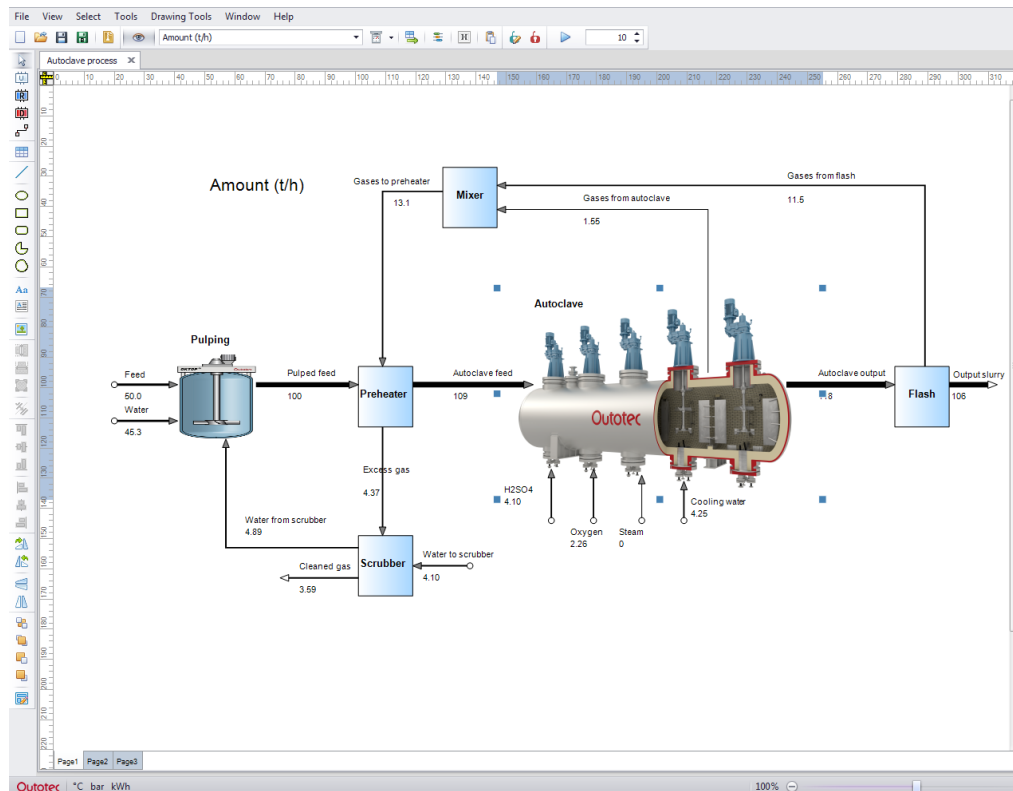
This course gives an overview of the basic HSC operation principles and the major procedures needed to solve more complicated problems with the HSC software. The course will also illustrate thermochemistry application possibilities in practical problems.

The Basic Course is intended for beginners and intermediate users of HSC. Earlier use of HSC Sim is not required. However, even more advanced users may find it useful because they will have the opportunity to raise questions concerning more difficult issues. The recommended course duration is 1 day.

Contents:

- Introduction to modelling with HSC Sim
 - Static flowsheet calculations
 - Dynamic flowsheet calculations
 - Elemental distribution unit operation model
 - Reaction unit operation model
 - Multiple specific unit operation models for handling particles
 - Different types of controls to set the model convergence
 - Calculating difference scenarios
 - Utilizing HSC Neural Networks with the flowsheet calculations
- Example exercises
 - Shaft Furnace
 - Gas Cleaning
 - Magnetite Concentration
- Combining models together in the same flowsheet

6.4. HSC Sim Hydro



This course focuses on HSC Sim reaction mode applications. Typically, these are used to simulate hydrometallurgical processes, but they may also be applied in many other areas.

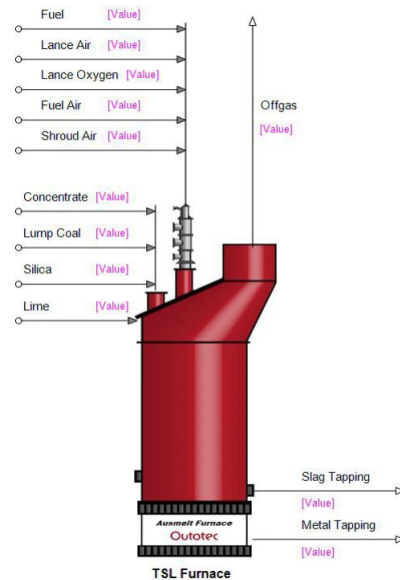
The course covers a general introduction to the Sim Flowsheet module with several demonstrations and provides an understanding of the potential applications of the Sim Reactions mode. The target of this course is to acquire the versatile skills to use and create Sim Reactions mode applications and analyse the results.

The course is suitable for metallurgists, researchers and process engineers who understand the basics of hydrometallurgy. Earlier use of HSC Sim is not required. The recommended duration of the course is 2 days.

Contents:

- Introduction to making Sim Hydro unit operations
 - Example definition: Leaching example
 - Drawing units and streams
 - Unit type selection and variable list
 - Unit model
 - Feed streams (Input sheet)
 - Controls (Controls sheet)
 - Running the model – results
- Example exercises
 - External control
 - Energy balance
 - Gypsum precipitation
 - Copper solvent extraction
 - Autoclave
 - Scenario editor
 - Creating stream tables
- Adding new compounds to HSC Database
- Using equilibrium calculation in Hydro models

6.5. HSC Sim Pyro & Hydro Dynamic



This course focuses on HSC Sim distribution mode applications in the dynamic mode.

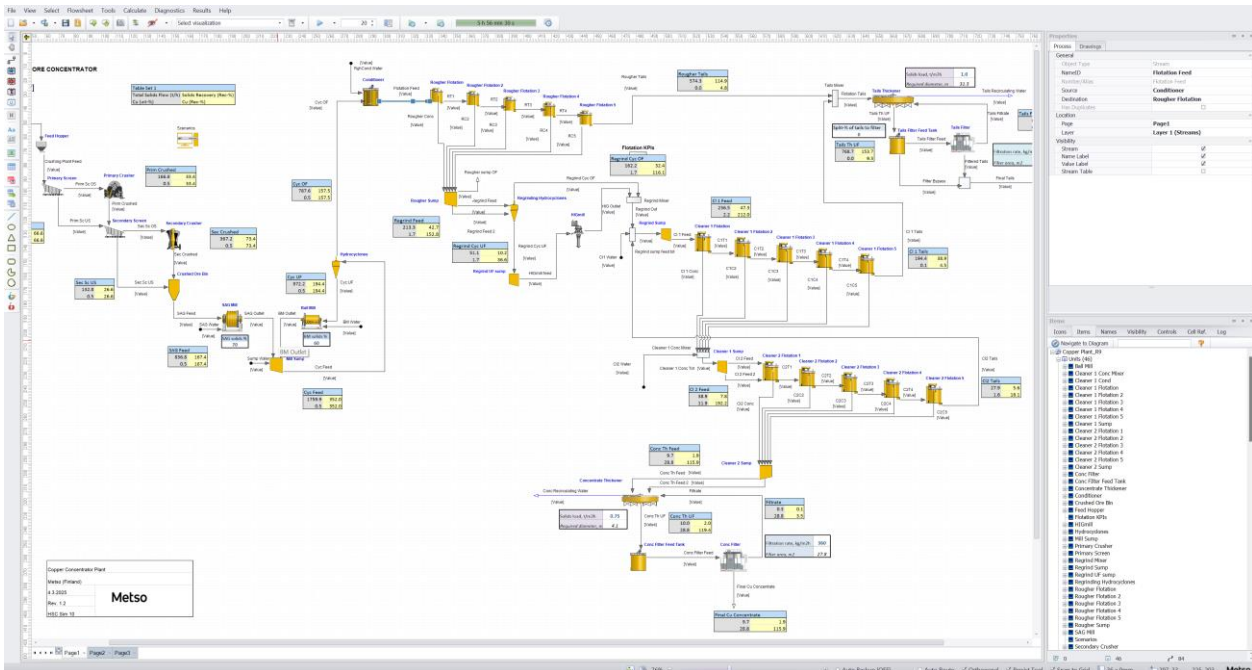
During this training session the user will become more familiar with the HSC Sim Dynamic Unit for species that is commonly used for modelling smelting operations. Although this training document is not comprehensive in all the features that the Dynamic units offer, it attempts to showcase the significant functions and differences as compared to the HSC Static units so a passing familiarity with the use of HSC Sim with those units would be useful.

The course is suitable for metallurgists, researchers and process engineers who understand the basics of pyrometallurgy. Earlier use of HSC Sim is recommended. The recommended duration of the course is 1 day.

Contents:

- Introduction to making dynamic simulations
- Dynamic dialog
- Dynamic unit for working species models
- TSL Lead Smelting – Multi-Stage Batch Simulation exercise example

6.6. HSC Sim Mineral Processing



The course focuses on HSC Sim Particles mode applications. Typically, these are used in minerals processing simulations, but they may also be applied in many other areas, e.g. recycling.

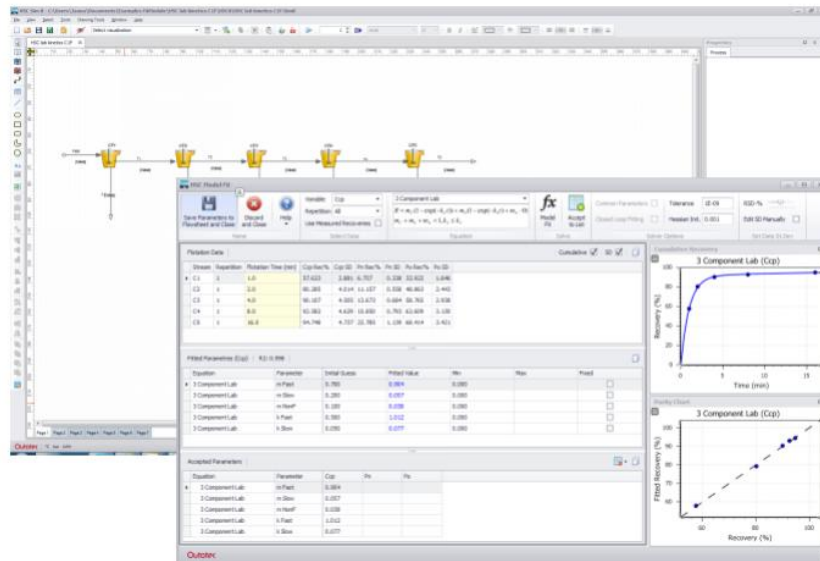
The course gives an overview of the basic HSC Sim operating principles and the major procedures required to solve more complicated problems. The course will also illustrate the potential applications of HSC Sim mineral processing by means of practical problems. The target of this course is to acquire the versatile skills to use and create Sim Particles mode applications for minerals processing and analyse the results.

The course is suitable for metallurgists, researchers and process engineers who understand the basics of minerals processing. Earlier use of HSC Sim is not required. The recommended duration of the course is 2.5 days.

Contents:

- Working with ready-made simulation
 - Basic usage of HSC Sim 10 and understand what can be done with HSC Sim
 - Cell references, running scenarios
- Creating a simulation model – flotation flowsheet balance
 - Drawing of a flowsheet with HSC Sim
 - Defining the feed stream: stream setup
 - Setting controls
 - Using unit models & simulating
- Kinetic flotation circuit model
 - Introduction to kinetic flotation modelling
- Comminution circuit with size classes
 - Feed composition with size fractions
 - Element to mineral conversion
- Grinding – flotation – dewatering
 - Element to mineral conversion
 - Water balance
- Flotation circuit design and scale-up
 - Plant design: scale-up of laboratory tests and selecting flotation cells
- Grinding Flotation with water recirculation
 - Model sulphide oxidation & water quality impact on flotation performance
- Dynamic simulation of flotation bank
 - Operate with dynamic flotation cell models
 - Integrate feed variations in the process with dynamic scenario editor

6.7. Mineral Processing Mass Bal & Model fit



The Advanced Course for Mineral Processing studies HSC Sim Particle mode application more deeply covering data reconciliation with HSC Mass Balance and model fitting of flotation data with HSC Sim Model Fit.

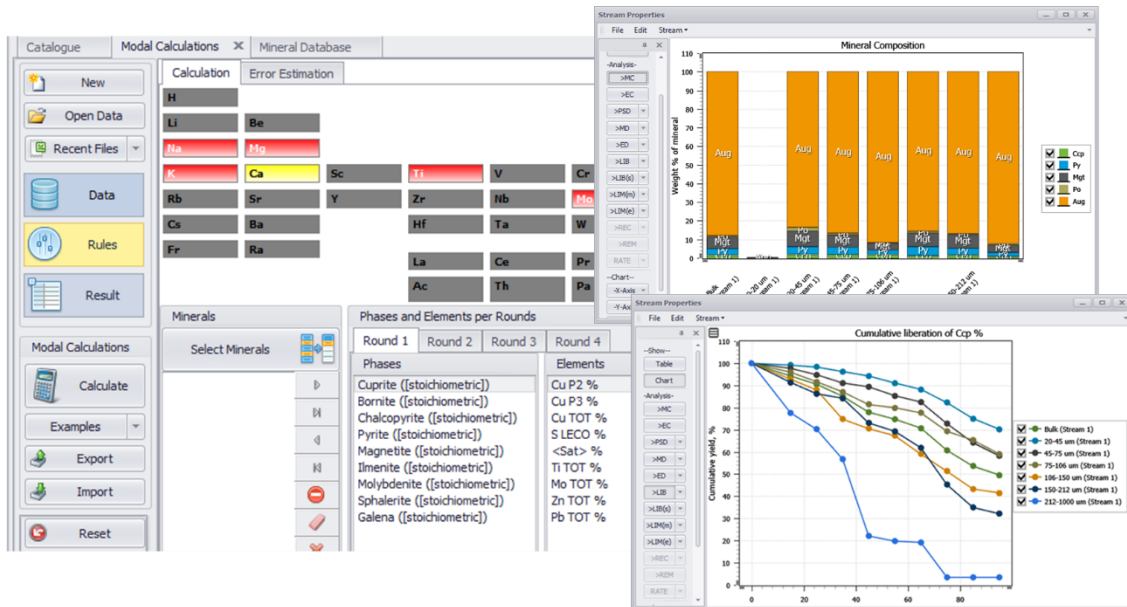
The course gives knowledge of processing experimental data with HSC modules, and more detailed information of the Sim Flowsheet module's advanced tools. The course is suitable for metallurgists, researchers and process engineers who understand the basics of minerals processing.

Earlier use of HSC Sim is recommended. The recommended duration of the course is 1 day, depending on required scope and if some own mass balancing, model fitting and simulation model cases are to be covered.

Contents:

- Mass balancing
 - Basic concepts of data reconciliation with HSC Mass Balance
 - Balancing of laboratory assays
 - Mineral based balancing: flotation kinetic test data
 - Sized balances
 - Plant wide balance: Au concentrator case
- Flotation kinetic modelling
 - Rougher flotation
 - Sequential selective flotation
 - Open loop cleaner repetitions
 - 1st cleaner kinetic test
 - Closed loop cleaner repetitions (locked cycle)
- Comminution circuit model calibration
 - Mill breakage rates & hydrocyclone calibration

6.8. HSC Geo & Liberations



Geometallurgy requires a practical, fast, and inexpensive method to quantify mineral compositions. This is possible using the HSC Geo module in HSC.

HSC Geo & Liberations course gives knowledge of using mineralogy to link geology and mineral processing together. The course is suitable for geologists, metallurgists, researchers, and process engineers who understand the basics of minerals processing.

Earlier use of HSC Sim is recommended. The recommended duration of the course is 0,5 day, depending on required scope.

Contents:

- Element to Mineral conversion
 - Basic concepts of element to mineral conversion (EMC) with HSC Geo
 - Mineral database
 - Examples of case studies
- Practical exercises
 - Importing mineralogical data
 - Performing Element to Mineral Calculations
 - Using mineralogical information
 - Back calculated chemical composition
 - Importing and processing liberation data