TORKSIM – simulation of the drying process.
A tool for quality control.

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Background

• TORKSIM is a computer program for simulation of the softwood timber drying process in batch kilns.

• The simulation is based on a model which is made as physically correct as possible…

• …on the other hand, the use of the software is kept simple so that, for instance, kiln operators without a higher education can use it.

• The first version was launched in 1998 and about 110 licenses have been distributed in Scandinavia
Background 2

Three languages are available for the program interface:

1. English
2. Swedish
3. Estonian

Program function

Input data:
1. Information about the timber being dried
2. Air velocity between board layers in kiln stack
3. A drying schedule
   - Either time based, or
   - Moisture content based
4. Energy consumption background data. (optional)
5. Drying costs background data. (optional)
Model input, page 1
Wood species, dimension and properties
Air velocity in stack

Model input, page 2
Drying schedule
Result 1
Graphic summary

Result 2
Numerical table
Drying schedule, modes

- Starting from version 4.0 of TORKSIM, both time based and MC based schedules can be used.

- For mathematical reasons the simulation has to be performed as a function of time. If a MC based schedule is entered, then it is converted to a time based schedule during the simulation.

- After the simulation both modes of schedules are available for the actual case.
MC based drying schedule

Converted to a time based drying schedule
Model input 3 (Optional)
Input data for energy and cost calculations

Result 4
Energy consumption
Result 5
Drying costs

Summary of output data

- Moisture content, as a function of time
- Moisture gradient, -``-
- Wood temperature, -``-
- Stress development (checking), -``-
- Slicing test gap, -``-
- Energy consumption, -``-
- Drying costs, -``-
Conclusions

• TORKSIM is a comprehensive software for prediction of several important features related to batch kiln softwood drying.

• It represents a valuable tool for quality control, trouble shooting and optimisation.

• It is also an efficient educational tool for kiln operators and people responsible for the kilning process, as well as for students in universities and technical schools.

Offer

• TORKSIM is offered to kiln operators, researchers and others interested in the kiln drying of softwood.

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