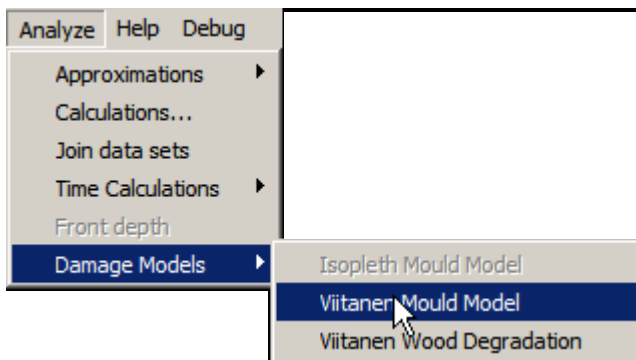


## Mould evaluation with DELPHIN 5.8 (VTT-Model)

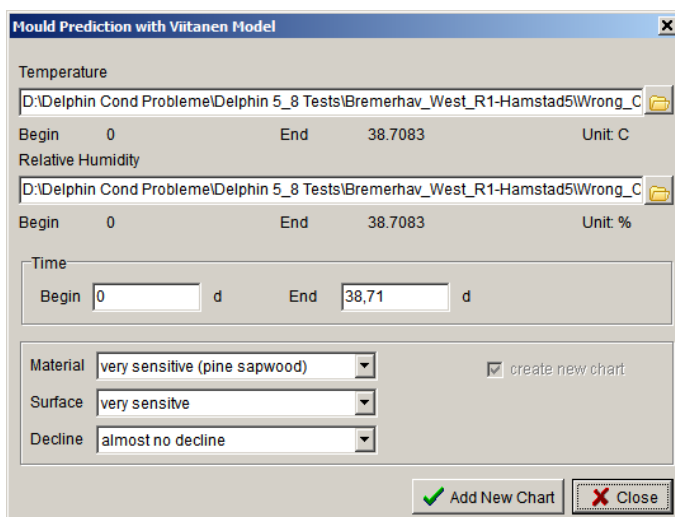
The VTT- resp. Viitanen-model for the evaluation of mould growth which is implemented in the DELPHIN-Postprocessor hourly values of temperature and relative humidity are necessary. This model only is valid for surfaces.

Procedure:

1. Generate your construction model in DELPHIN and assign temperature and relative humidity outputs for the inner surface:
  - a. Preferably hourly values.
  - b. Of longer segments with 2D constructions take an average value of the surface and/or monitor a particularly exposed point.
  - c. Simulations with quasi real climate should take at least 2 years, better longer due to adjustment and influences of initial settings.
2. Open the postprocessing after the end of the simulation and generate a random output.
3. In the main menu choose >> Analyze >> Damage Models >> Viitanen Mould Model.



4. In the dialogue choose at „Temperature“ the temperature output and at „Relative Humidity“ the relative humidity output.



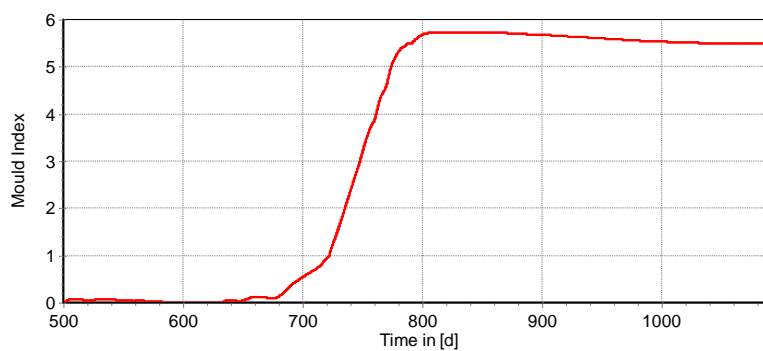
5. At the input fields „Time: Begin“ und „Time: End“ the start and end point for the evaluation period can be defined (reasonable at long-lasting simulations with one climate). With multi-annual simulation where the real initial conditions are not known it is advisable not to evaluate the first year.

6. Afterwards the properties of the material itself, his surface (maybe paint) and the possible mould regression have to be set.
  - a. For Material and (in principle) surfaces in parenthesis after the designations examples are given.
  - b. The property „Decline“ is not specified closer.
  - c. To exclude mould growth by any chance these properties can be chosen in the direction of “worst case”, as seen in the picture.

For that the results are on the safe side it is recommended to choose at “Material” and/or “Surface” an option that is more preferable for mould fungi.

7. Clicking on „Add New Chart“ generates the course for the mould index.

Thereby the dialogue is not closed, this happens after a click on „Close“. In so doing it is possible to generate curves with different settings. As a result the user obtains the temporal course of the VTT-Mould Index.



The VTT-Mould Index can be interpreted as follows:

VTT-Mould Index	Description	Growth
0	No growth	Spores not active
1	Small amounts of mould on surface (microscope)	Initial stage of growth
2	Several local mould growth colonies on surface (microscope)	-
3	Visual coverage < 10 %, microscopic coverage < 50 %	Visual findings of mould, <b>new spores are produced</b>
4	Visual coverage 10 – 50 %, microscopic coverage > 50 %	Visual findings of mould
5	Visual coverage > 50 %	Plenty growth
6	Coverage about 100%	Heavy and tight growth