

COMPUTATION BY VISUAL FORTRAN OF POLINOMS, OBTAINED BY MEANS OF SOFTWARE PACKAGE TABLE CURVE 2D

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ABSTRACT

Polynomial equations, which describe the change in the processing air medium temperature T_m during freezing in a freezer and the subsequent defrosting of logs using a software package Table Curve 2D have been obtained. The equations are needed for computation of T_m in the boundary conditions of mathematical models of these processes in the calculation environment of Visual Fortran.

In the course of the work it was established that in the software of Visual Fortran there are constraints which cause a sharp deterioration of the accuracy of calculation of T_m when the polynomial equations contain members with a degree higher than 3.

REFERENCES

- Deliiski, N. (2004): Modelling and automatic control of heat energy consumption required for thermal treatment of logs. *Drvna Industrija*, Volume 55, № 4: 181-199.
- Deliiski, N. (2005): Modelling and automatic control of the process of thermal treatment of logs. *Information Technologies and Control*, UAI, Sofia, Year 3, № 2: 9-14.
- Deliiski, N. (2011): Transient Heat Conduction in Capillary Porous Bodies. In Ahsan A. (ed) *Convection and Conduction Heat Transfer*. InTech Publishing House, Rieka: 149-176, <http://dx.doi.org/10.5772/21424>.
- Deliiski, N., Dzurenda, L. (2010): Modelling of the thermal processes in the technologies for wood thermal treatment. TU Zvolen, Slovakia, 224 p. (in Russian).
- Deliiski, N., Tumbarkova, N. (2016): A Methodology for Experimental Research of the Freezing Process of Logs. *Acta Silvatica et Lignaria Hungarica*, Vol. 12, № 2: 145-156, <http://dx.doi.org/10.1515/aslh-2016-0013>.
- Deliiski, N., Tumbarkova, N. (2018): An Approach for Computing the Heat Sources in Logs Subjected to Freezing. *Acta Silvatica et Lignaria Hungarica*, Vol. 14, № 1: 35-49. DOI: 10.2478/aslh-2018-0002.
- Hadjiski, M., Deliiski, N. (2016): Advanced Control of the Wood Thermal Treatment Processing. *Cybernetics and Information Technologies*, Bulgarian Academy of Sciences, 16 (2): 179–197, <http://dx.doi.org/10.1515/cait-2016-0029>.
- Khatabi, A., Steinhagen, H. P. (1992): Numerical Solution to Two-dimensional Heating of Logs. *Holz als Roh- und Werkstoff*, 50 (7-8): 308-312, <http://dx.doi.org/10.1007/BF02615359>.
- Khatabi, A., Steinhagen, H. P. (1993): Analysis of Transient Non-linear Heat Conduction in Wood Using Finite-difference Solutions. *Holz als Roh- und Werkstoff*, 51(4): 272-278, <http://dx.doi.org/10.1007/BF02629373>.
- Khatabi, A., Steinhagen, H. P. (1995): Update of “Numerical Solution to Two-dimensional Heating of Logs”. *Holz als Roh- und Werkstoff*, 53(1): 93-94, <http://dx.doi.org/10.1007/BF02716399>.

Sergovsky, P. S. (1975): Hydro-thermal treatment and conserving of wood. Lesnaya Promyshlennost, Moscow, URSS, 400 p. (in Russian).

Shubin, G. S. (1990): Drying and thermal treatment of wood. Lesnaya Promyshlennost, Moscow, URSS, 337 p. (in Russian).

Trebula, P., Klement. I. (2002): Drying and hydro-thermal treatment of wood. Technical University in Zvolen, Slovakia, 449 p. (in Slovak).

Videlov, H. (2003): Drying and thermal treatment of wood, University of Forestry, Sofia, 335 p. (in Bulgarian).

<http://www.rotronic.com>

<http://www.sigmaplot.co.uk/products/tablecurve2d/tablecurve2d.php>

<http://www.bioprocessonline.com/doc/automated-curve-fitting-software-tablecurve-2-0001>