

TIMBER DRYING QUALITY EVALUATION IN INDUSTRIAL CONDITIONS

Goran Zlateski, Branko Rabadjiski, Zoran Trposki, Vladimir Koljozov

ABSTRACT

An evaluation of timber drying quality in industrial dry kiln with convect drying process is presented in this paper. The target moisture content, i.e. the required moisture content, indicates the suitable moisture content in the wooden material when the product is used or produced. Knowledge of allowable range of the average moisture content of a lot relative to the final moisture content after drying is used to calculate drying quality classes according to European Drying Group (EDG) Recommendation. Measurements and data analysis of moisture content distribution in conventional dry kiln process indicate that 80% of moisture content readings were within the range satisfying the Q quality class.

REFERENCES

- Aquiar, O., Perre, P. (2000): The "flaying wood" test used to study variability of drying behavior of oak, COST action E 15, Advances in drying softwood, Sopron.
- Carlsson, P., Arvidsson J. (1999): Optimized wood drying, 6 th International IUFRO Wood Drying Conference, Stellenbosch.
- Denig, J., Wengert, E., Simpson, W. (2000): Drying Hardwood Lumber, Madison.
- EDG – Recommendations (1994): Assessment of drying quality of timber.
- Esping, B. (1994): Preparing the Swedish sawmill industry for the EDG recommendations. Proceedings for the 6th International EDG Drying Conference, Hamburg, Germany, 13-14.Oct.
- Forsén, H., Tarvainen, V. (1994): Überprüfung der Qualitätsanforderungen der EDG Richtlinie in finnischen Sägewerken. Proceedings for the 6th International EDG Drying Conference, Hamburg, Germany, 13-14.Oct.
- Hukka, A. (2006): Proceeding, Quality wood drying through Process Modelling and Novel Technologies, IUFRO Wood Drying Conference, Quebec, Canada.
- Key, R. (1998): Understanding kiln – seasoning for the benefit of industry, Canterbury.
- Kollman, F. (1951): Technologie des holzes und der holzwerkstoffe, München.
- Lin, J., Cloutier, A.(1996): Proceeding, Quality wood drying through Process Modelling and Novel Technologies, IUFRO Wood Drying Conference, Quebec, Canada.
- Noack, D. (1989): Die Bedeutung der Normung für die Verwirklichung des europäischen Binnenmarkie'92 in Bereich der Holzwirtschaft. Holz – Zentralblatt
- Oliveira, L. (2003): Analyzing industrial lumber drying data, Quality drying, the key to profitable manufacturing, International conference, Madison.
- Rabadjiski, B., Zlateski, G.(2000): Temperaturni režimi za sušenje na bukova i dabova neokrajčena bičena gragja, Jubileen godišen zbornik, Faculty of Forestry, Skopje (in Macedonian).
- Rasmussen, E.(1961): Dry Kiln – Operator's manual, Madison.
- Ryszard, G., Jerzy, M., Wieslaw, O., Jan, D. (2002): Moisture content of timber after drying – estimation of drying quality, Electronic Journal of Polish Agricultural Universities, Vol. 5, Issue 2.
- Sebastian, P., Joman, W., Turner, W. I. (1996): A new model for the vacuum drying of wood based on the concept of the transition layer, Quality Wood drying through process modeling and novel technologies, 5-th International IUFRO wood drying conference proceedings, Quebec, pp 191 – 205.

Scaar, C. (1972): Water in wood, Syracuse.

Simpson, W. (1987): Vacuum drying northern red oak, Forest Products, Vol. 37, No.1, Madison.

Simpson, W.(2000): Drying Hardwood Lumber, Madison.

Sorensen, C.B. (1995): Training of kiln operators and quality control staff – some preconditions for ISO 9000 certification. Proceedings for the 6th International EDG Drying Conference, Hamburg, Germany, 13-14.Oct.

Swigon, J. (1993): Some thermodynamic aspects of wood vacuum drying, Vacuum drying of wood' 93, International conference on wood drying, High Tatras pp 35-44.

Todorovski, S. (1983): Hidrotermička obrabotka na drvoto, Šumarski fakultet, Skopje.

Tronstad, S.(1994): Kiln Drying Clubs – exchange of experience in industrial practice, Proceedings for the 6th International EDG Drying Conference, Hamburg, Germany, 13-14.Oct.

Welling, J.(2000): Industrial needs and scientific expectations, COST action E -15, Advances in drying of wood, Sopron.

Welling, J. (1995): Drying quality assessment and specification – a challenge for the future. Proceedings of the 4th International IUFRO Wood Drying Conference – Rotourua, New Zeland.

Zlateski, G. (2004): Proučuvanje na režimite i kvalitetot na kontaktno vakuumsko sušenje na pilanski sortimenti, Doktorska disertacija, Faculty of Forestry, Skopje (in Macedonian).