MODFIED PHENOL – PHORMALDEHYDE RESINS USED FOR PLAYWOOD GLUING

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ABSTRACT

In this study the influence of tartaric acid, ferric chloride, phthalic anhydride and quebracho extract on the setting time of phenol-formaldehyde resin and the adhesive strength of adhesive-bonded joint was investigated. The test samples used for the experiments were in dry state and previously immersed in boiling water for one hour. The amounts of applied modifiers were 0.5 %; 1.0 %, 1.5 % and 2 % in relation to solid content of the resin. It was found that added compounds exert a positive influence on the setting time of the resin, in addition to improving the binding strength of the produced plywood.

REFERENCES

БДС ISO 6238:2004 (2006): Adhesives for wood gluing. Determination of adhesion strength by glue seam destroying under pressure.

Bekhta, P., Ortynska, G., Sedliacik, J. (2014): Properties of modified phenol-formaldehyde adhesive for plywood panels manufactured from high moisture content veneer, Drvna Industrija, Vol. 65, No. 4, 293-301.

Cetin, N. S., Ozmen, N. (2002): Use of organosolv lignin in phenol-formaldehyde resins for particleboard production I. Organosolv lignin modified resins, International Journal of Adhesion and Adhesives, Vol. 22, 477-480.

Conner, A. H., Lorenz, L. F., Kolby, K. C. (2002): Accelerated cure of phenol–formaldehyde resins: studies with model compounds, Journal of Applied Polymer Science, Vol. 86, 3256-3263.

Czarnecki, R., Łęcka, J. (2003): H_2O_2 as a modifier of phenol-formaldehyde resin used in the production of particleboards, Journal of Applied Polymer Science, Vol. 88, No 14, 3084-3092.

Dziurka, D., Łęcka, J., Mirski, R. (2009): The effect of modification of phenolic resin with alkylresorcinols and H_2O_2 on properties of plywood, Acta Scientiarum Polonorum, Silvarum Colendarum Ratio et Industia Lignaria, Vol. 8, No 4, 67-74.

European Standards. EN-314. (1992): Testing of Plywood. European Committee for Standardization (CES): Brussels, Belgium.

Grenier-Loustalot, M. F., Larroque, S., Grande, D., Bedel, D. (1996): Phenolic resins: Influence of catalyst type on reaction mechanisms and kinetics, Polymer, Vol. 37, 1363-1369.

Sedliačik, J., Bekhta, P., Potapova, O. (2010): Technology of low-temperature production of plywood bonded with modified phenol-formaldehyde resin, Wood Research, Vol. 55, No 4, 123-130.