



Wood Technology Institute, Poznań, Poland

EBM – ecological lignocellulosic composite – material of the future



fully ecological material



homogenous structure on the surface and cross section



closed, smooth surface



*vast range of thicknesses
6-30 mm*



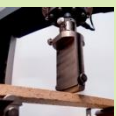
high resistance to moisture



fire retardant material



*full resistance to biological
decay*



high durability



*excellent hold of screws, pins
and all kinds of hinges*



easy machining



fast assemblage

Wood Technology Institute, along with Chemical Plant „Silikony Polskie” Ltd., developed **ecological lignocellulosic nanocomposite for construction and furniture industry – EBM and a silicone binder for its production.**

The hot-pressed panel composite made of medium-sized and small-sized hardwood, including material from plantations and agricultural crops, as well as the silicone binder forming network in condensation system, which is used for the production of the composite, both were developed under the project No. NR15 0076 06 „*New structural material – an ecological wood-based nanocomposite of enhanced resistance to fire and water, produced in an energy saving production process*”.



Project financed by the National Centre for Research and Development.

Unlike composites commonly offered in the world market, the ecological nanocomposite contains neither formaldehyde nor any other compounds harmful to the environment and human health, which was confirmed by the results of VOC tests carried out by an accredited laboratory. In 2006 the World Health Organization and the International Agency for Research on Cancer considered formaldehyde a carcinogenic compound as regards people (Group 1). Within the EU formaldehyde is currently classified as a category 3-R40 substance. Unfortunately, at present approximately 90% of wood-based panels is manufactured using resins containing formaldehyde.

The new material is fully resistant to microbiological decay and fire retardant. A panel's durability and resistance to moisture is at different levels depending on the technological option, but it can be much higher than that required according to EN 312:2011 standard for all types of particleboards (P2-P7) and according to EN 300:2007 standard.

The developed formaldehyde-free composite is an innovative multi-purpose wood-based panel for application in construction and furniture industry, and for equipping such interiors as kindergartens, schools, hospitals or public buildings.

E - ecology
B - building
M - manufacture of furniture



Success story



EBM is intended for:

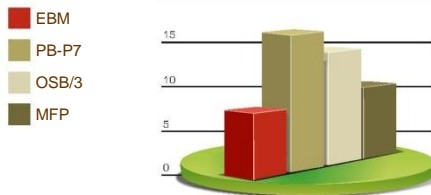
- wall panelling
- floors
- partitions
- ceiling panelling
- means of transport
- packaging
- indoor equipment and furniture making

EBM may be produced from various species of hardwood and softwood, also from fast-growing species grown on agricultural and forest plantations, using a silicone binder networked in a polycondensation system.

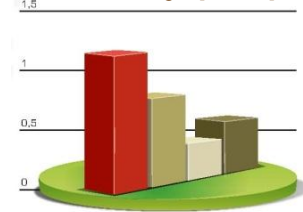
EBM is the best



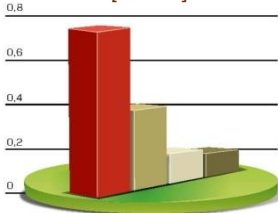
Swelling after 24 h immersion in water [%]



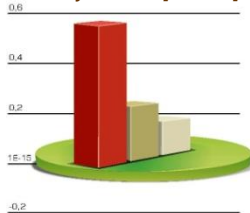
Tensile strength [N/mm²]



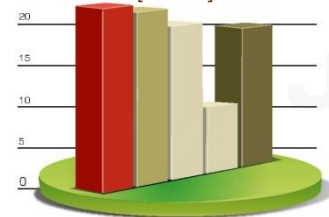
V-100 tensile strength [N/mm²]



Tensile strength after cyclic test [N/mm²]



Bending strength [N/mm²]



* bigger axis
** smaller axis

Research Team: Iwona Frąckowiak, Andrzej Idziak, Magdalena Łubkowska, Jarosław Gąsior, Andrzej Miazga, Rafał Muskus, Aleksandra Sokołowska



Contact:

Iwona Frąckowiak, PhD (Eng)
Wood Technology Institute
Wood-Based Materials and Glues Department
Winiarska 1, 60-654 Poznań, Poland
phone: +48 61 849 24 48
fax: +48 61 822 43 72
e-mail: i_frackowiak@itd.poznan.pl
www.itd.poznan.pl