MAY 2007 € 3,50 5

BeckerBrief

New chances
A material that appeals to architects

New functions
A product for public spaces

New test results
The figures are convincing

BECKER incendur®

Moulded plywood that resists fire

BECKER
BRAKEL

Moulded plywood for new tasks

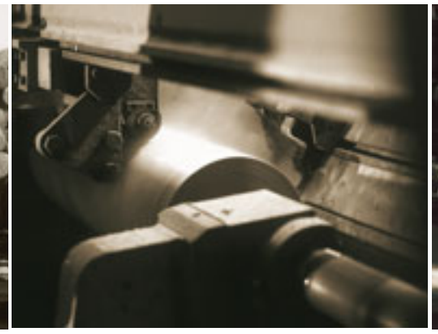
As a specialist for the manufacture of customised moulded wood components, our company has been in the market for over 70 years. Customers include the international furniture industry, interior fittings, the vehicle industry and property suppliers. They value us as a business partner and reliable supplier of innovative moulded wood products.

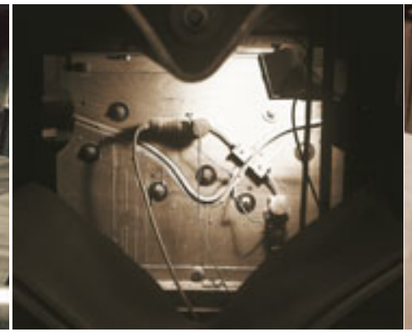
Wood, and thus moulded plywood, is naturally combustible. With the new, flame retardant material "BECKER incendur®" you can now use moulded plywood wherever the special requirement "B1 – hardly flammable" is placed on room fittings.
Certain uses of wood in public spaces, for example in cinemas, hotels, congress rooms or public transport, have thus been very restricted up to now. Architects and manufacturers, however, are very interested in using moulded plywood in public buildings. The reasons are obvious: its versatility and design possibilities, its pleasant touch and natural, warm attraction make moulded plywood exceptionally attractive.

Moulded plywood that complies with building material class B 1 thus opens up whole new fields of application. It is thus only logical that we have developed a flame retardant moulded plywood. The main problem that had to be solved was to prevent the outgassing of the wood in the event of a fire. This process is inevitable in untreated wood, and because these gases are highly flammable they kindle the fire in their environment.
The principle we developed is both convincing and easily explained: the individual beech wood veneers are impregnated with a solution of certain salts after the peeling process. These salts penetrate every cell. The special property of this solution is that it prevents outgassing at high ambient temperatures, thus making the wood resistant to fire. We already discovered the process of modifying wood whilst developing "BECKER belmadur®". The cells are hereby cross-linked with another special solution to make the moulded plywood weatherproof, with values comparable to those of teak. In this respect, the technology already existed to make moulded plywood flame retardant. But of course the new chemical components had to be developed and tested before the new material "BECKER incendur®" could prove itself in an independent testing institute. The certificate was finally issued in March 2007.
The moulded plywood technology and flame retardant material exists. The time has now come for the ideas from architects and designers. Contact us now!

Fritz Becker KG
Dr. Ralf Becker

FOTOS: AMOS SCHLIACK




BECKER incendur®

The name and its meaning
BECKER incendur® betrays its quality in its name. It is based on two Latin roots: "incendium" meaning fire and "dur" meaning strength. Incendur® is thus more than just a pleasant sounding made-up word: it's also a product promise.
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Becker quality.
Making moulded plywood is our core business. The manufacturing process is complex and calls for a high production know-how. Veneers of different thicknesses are initially produced from steamed beech stock timber and carefully sorted according to quality. These form the basis for the best moulded plywood. These veneers are then glued and layered according to the function before being given their final shape in a press, where the glue and wood enter into a permanent bond. Depending on its structure, moulded plywood displays great elasticity, tensile force and strength. The design possibilities in form, surface and processing make it a popular material for designers throughout the world who have been co-operating with Becker KG in Brakel for decades.

The new product

THE FIELDS OF APPLICATION

e.g. hotels
Moulded plywood is versatile. It can be used everywhere, in furniture or wall and ceiling panels.

e.g. rail traffic
Moulded plywood has a first-class appearance and is also very tough.

e.g. cruise liners
A lot can be achieved with moulded plywood if you want to create a particular atmosphere.

e.g. airports
Modern and comfortable, moulded plywood can fulfil both demands that are essential requirements in airports.

FOTOS: COSTA MEDITERRANEA, CSA AIRLINES, SOUTHWARK ROSE HOTEL, PHOTO ART - BERND SCHMITZ

HOW IT IS MADE

The beech wood veneers are impregnated with salts dissolved in water. The solution hereby penetrates all of the cells in the wood. These veneers are then dried and processed normally. The next difference only occurs during pressing, where special glue that also complies with fire protection class B1 is used in place of normal glue. This is a 2-component glue system. If the surface is later varnished a fireproof varnish is used.

WHAT IT CAN DO

BECKER incendur® moulded parts are flame retardant because the salts dissolved in water prevent a chemical process that makes the wood flammable faster. Un-impregnated wood outgasses at high temperatures, and this gas is highly flammable. This means that the wood burns itself and accelerates the fire. The salts inside the cells prevent this process. It thus offers the fire a very high resistance that is untypical of wood. The tests commissioned by Becker KG produced some very clear results.
Impregnating the veneers has hardly any haptic or optical consequences. The salt dispersion only increases the weight of the material by around 20 percent. And the process makes it slightly darker.

HOW IT CAN BE PROCESSED

The treated veneers are slightly more brittle and heavier than untreated wood. This places closer tolerances on three-dimensional deformation tan for conventional beech wood veneers. Veneers of different thicknesses (between 1.1 mm and 1.5 mm) are used for the various requirements (e.g. tight radii). Moulded plywood blanks of BECKER incendur® can be further processed on our CNC machining centres and the other wood processing machines without restrictions.

WHERE IT IS AVAILABLE

We are happy to develop and build the form tool according to your needs or you can fall back on our extensive stock of tools. Find out more in our moulded plywood compendium or contact us for further information. The minimum order quantity per order with the tool is then 250 moulded parts. Other batch sizes can be agreed in individual cases.
Purchasers of BECKER incendur® can be sure of receiving timber that has come exclusively from sustainable German forests. This is guaranteed by the PEFC certificate of Becker KG.
This bears the certificate number: PEFC/04-31-03-41 and proves that we are part of the "Chain-of-Custody". The quality of flame retardant BECKER incendur® moulded plywood corresponds with the special demands of our company in terms of input material and processing. In this respect we grant a 10 year warranty on the durability (gluing) if the moulded plywood is used correctly. The warranty does not cover the surface coating.

BECKER incendur®

How the new moulded plywood was tested

Only objective data counts when it comes to proving fire resistance. This is why the new BECKER incendur® moulded plywood was thoroughly tested by an independent, official testing institute.

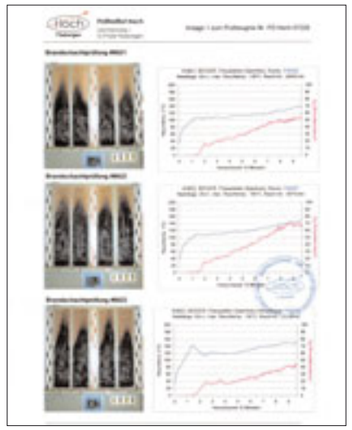
THE PRECONDITIONS

All test samples were initially conditioned to a normal climate. The samples were hereby stored in a climatic chamber until no further change in weight was detected. The normal climate had the following values: 50% (+/- 5%) relative air humidity and 23 degrees (+/-2 degrees).

THE TEST

Proof of the fire behaviour in accordance with DIN 4102 Part 1 calls for the fulfilment of the following criteria in the fire shaft test:

- Four unvarnished test pieces (plywood 1000 mm x 190 mm) are arranged vertically upright. This arrangement produces a chimney effect during flame impingement. Several tests with different thicknesses (from 10 mm to 30 mm) are carried out.
- The wood boards are fired from below with a gas flame for exactly 10 minutes.
- The flue gas temperature may not exceed 200 degrees Celsius during the entire test.
- There may be no afterburning of particles that fall down.
- The test pieces may not continue to burn after gas flame is switched off.
- At least 150 mm of the material must remain intact at the top of the test piece.
- If the test pieces display no visible negative effects on the rear they may also be used as permanently installed parts of a structure, such as wall panelling. Moulded parts achieve this value as of a thickness of 13 mm.



All tests are done by an independent, official testing institute. The values were carefully documented.

GOOD QUESTIONS & INTERESTING ANSWERS

Can BECKER incendur® moulded plywood components be glued together?
No problem with PVAC glue.

Can the new material be disposed of without any problems?
The material can be disposed of through the familiar waste management channels.

Can I varnish the surface of BECKER incendur®?
The moulded part remains natural wood, so that it can be finished as normal by impregnation or varnishing.

What coating is needed?
In co-operation with our partner for coatings, the firm of Peters in Brakel, we guarantee a surface coating that fulfils all the requirements of DIN 4102 B1 – Hardly inflammable – and/or EN 5510 for rail vehicles.

Are face veneers (sliced veneers) also available as top layers?
Yes, all BECKER incendur® moulded parts are available in other exotic woods such as maple, oak, cherry, service tree or zebrawood along with beech wood surfaces as decorative face veneers. This opens up endless possibilities in interior design for architects, interior designers and designers.

TESTING PROCEDURE

FOTOS: JOACHIM SCHELPER

The test pieces were placed in the combustion chamber before the test in exactly the prescribed manner. All values were measured and documented during flame impingement. The experts then went over the test pieces with a fine-tooth comb.

BECKER incendur®

Our addresses in Germany

Fritz Becker KG
Am Königsfeld 15
DE-33034 Brakel
Tel. +49-5272-60 09-0
Fax +49-5272-60 09-88
info@becker-kg.de
www.becker-kg.de

Our agencies abroad

Denmark
Peter Ellemose A/S
DK-9500 Hobro
Tel. +45-98 52 58 88
ellemose@ellemose.dk
www.ellemose.dk

France
Agence Commerciale Guyard
8 rue des Artisans
FR-78760 Jouars Ponchartrain
Tel. +33 1 34 91 22 20
info@agence-guyard.com

Great Britain
Carl Dengel
Continental Furniture
Components Ltd.
UK-Reading, Berks. RG31 6JY
Tel. +44-118-945 10 13
carl.dengel01@btconnect.com

Netherlands and Belgium
Lindner Benelux BV
NL-3980 CA Bunnik
Tel. +31-30-656 37 74
info@lindnerbenelux.nl
www.lindnerbenelux.nl

USA
Davidson Plyforms, Inc.
USA-Grand Rapids,
MI 49512
Tel. +1-616-956-00 33
davidson@plyforms.com
www.plyforms.com

Spain and Portugal
Pedro Smith Borda
ES-11407 Jerez de la Frontera
Mobil +34-651-83 77 62
pedrosmith@telefonica.net

Italy
GA. MI. Rappresentanze SRL
IT-20131 Milano
Tel. +39-02-282 66 85
info.gami@gamisrl.it

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DE-33034 Brakel
info@becker-kg.de
www.becker-kg.de

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