



FLEXOKORE[®]

STRUCTURAL BALSA CORE
MATERIAL

FLEXOKORE[®]
is available world wide through
our distribution network,
please contact in the first instance

FLEXOKORE LTD[®]

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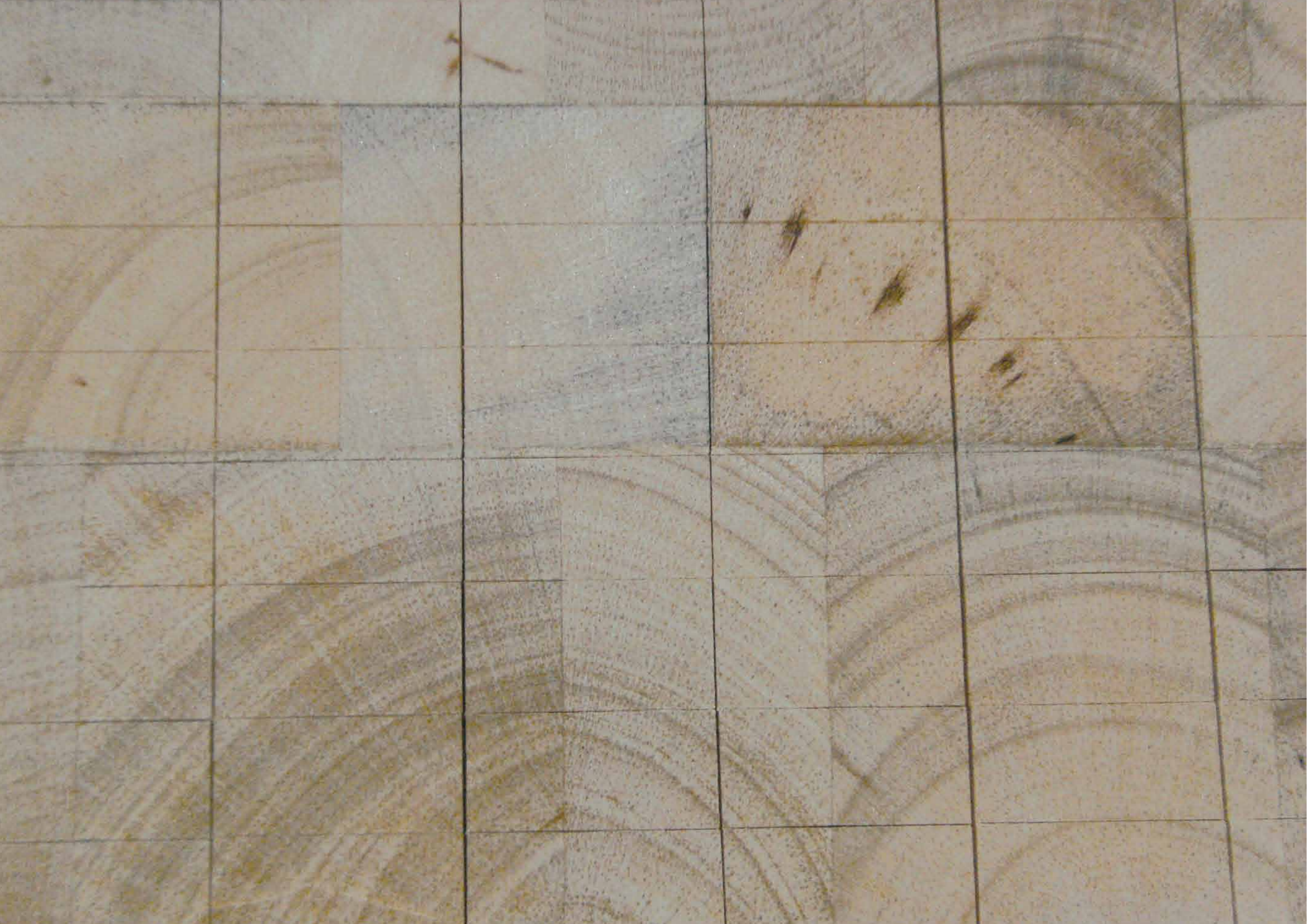
Email: dosunedosune@aol.com • Website: www.flexokore.co.uk

Lloyd's
Register



The data provided gives approximate values for the nominal density. Due to density variations these values can be lower than indicated above. Minimum values should be used to calculate sandwich constructions. The information contained herein is believed to be correct and to correspond to the latest state of scientific and technical knowledge. However, no warranty is made, either expressed or implied, regarding its accuracy or the results to be obtained from the use of such information. No statement is intended or should be construed as a recommendation to infringe any existing patent.



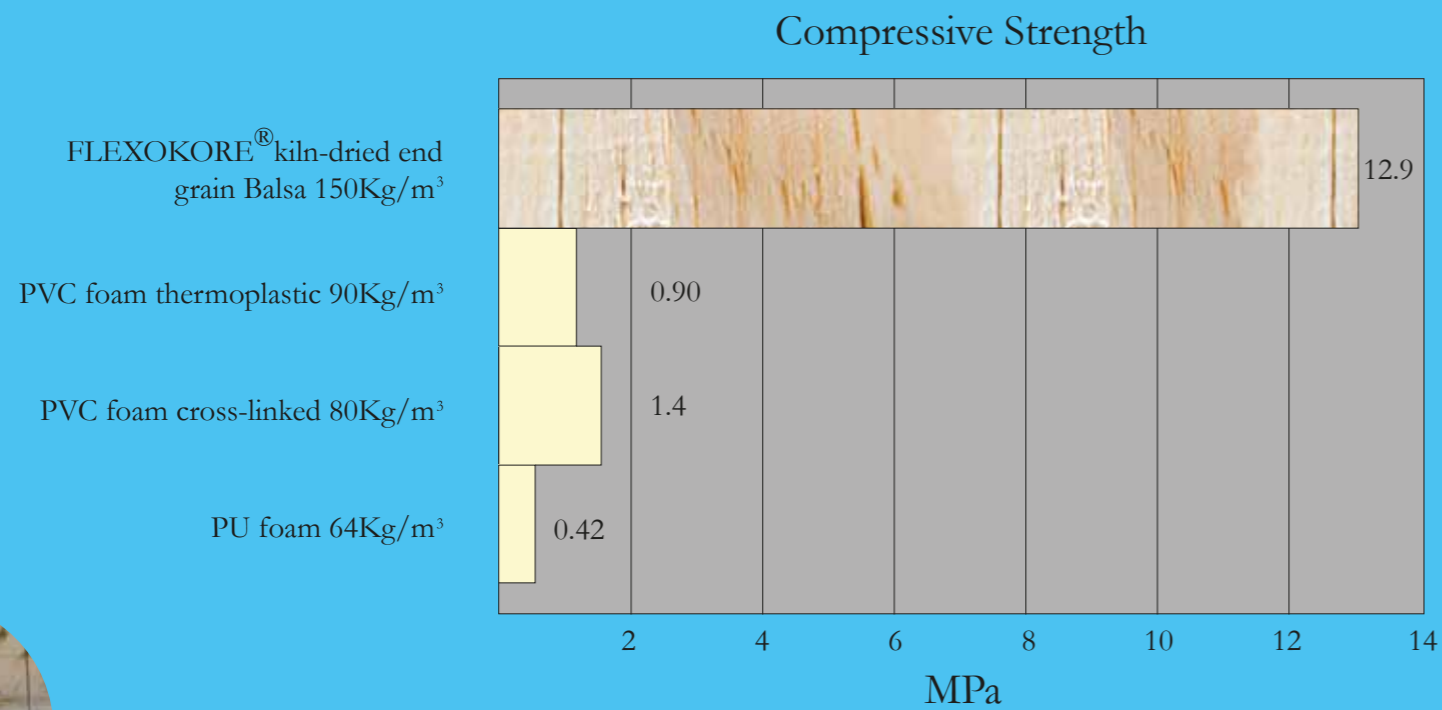




[COMPRESSIVE STRENGTH]

Compressive Strength is the maximum stress a material can sustain under crush loading and is particularly important in preventing thin skins from wrinkling and failing in a buckling mode.

The graph below compares values of Compressive Strength for various core materials. The values have been obtained from manufacturers' published literature



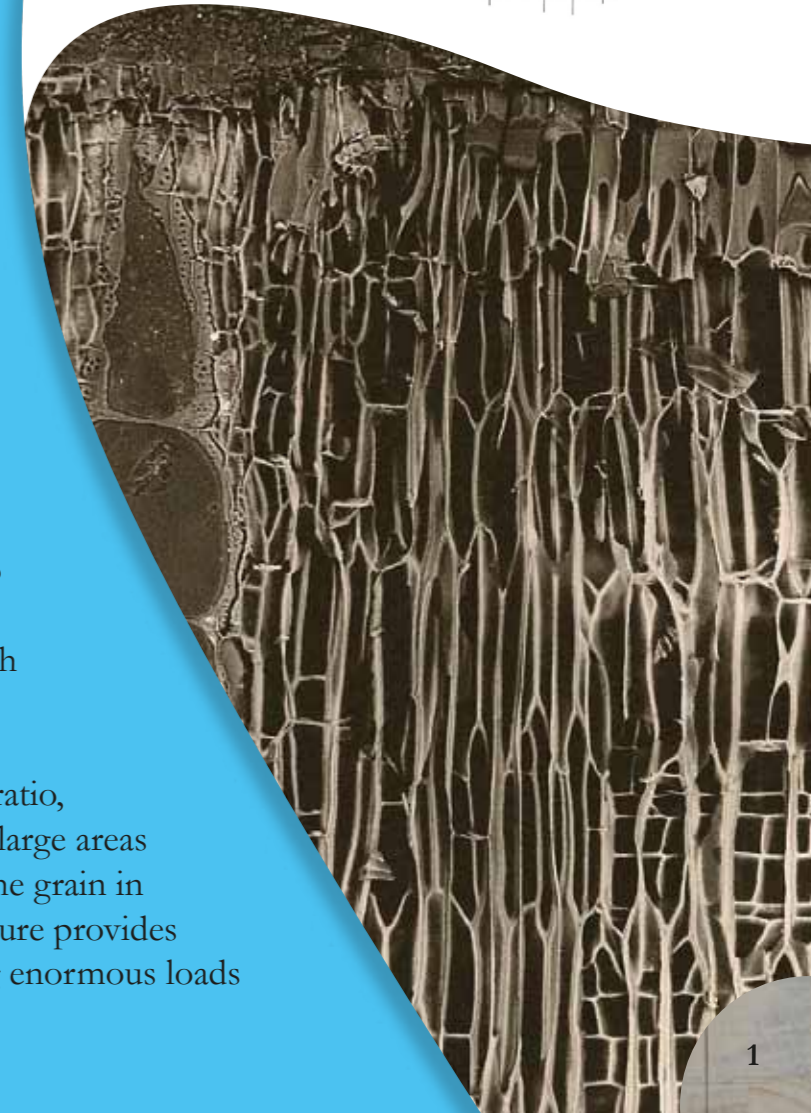
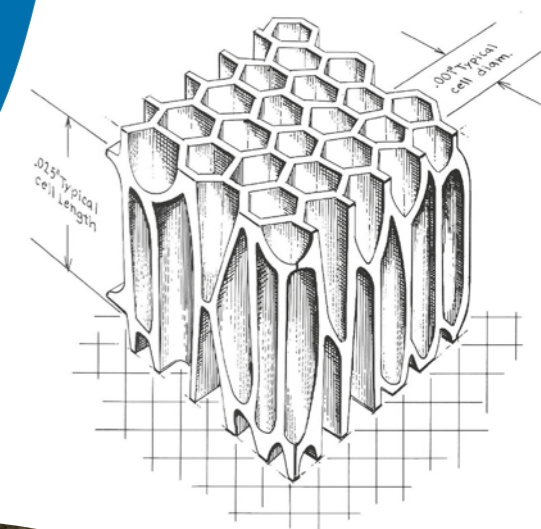
FLEXOKORE®

is a balsa wood core material manufactured from select grade balsa. Balsa grows from seedlings to maturity in about 5 years and is found growing naturally and on plantations in Ecuador.

FLEXOKORE® plantations are managed by us; having been established in Ecuador since the 1970's we control and supervise the complete growing cycle assisting the sustainability and biodiversity of this unique renewable resource.

Harvested balsa lumber is manufactured into end grain configuration at our purpose built facilities to take advantage of its natural "honeycombe" structure. This end grain configuration exhibits high mechanical properties.

Microscopic analysis of balsa shows a high aspect ratio, closed cell structure where each minute cell shares large areas of wall structure with adjacent cells. By orienting the grain in the direction of maximum stress this natural structure provides an extremely high strength to weight ratio, carrying enormous loads by distributing the load from one cell to the next.





FLEXOKORE® [PRODUCTS]

DENSITY

Balsa density varies naturally between 50 and 300Kg/m³ when dried; standard density of FLEXOKORE® is manufactured to average 150Kg/m³. Higher and lower densities are available at special request.

PANEL DIMENSION

The end grain configured panels are produced with a size of 1220mm x 610mm as standard but larger can be produced. Panel thickness ranges from 3mm to 1000mm for the rigid (RP) and 3mm to 50mm for the flexible panel with glass scrim (FPS).

PRODUCT TYPES

RP – Rigid Panels cut to thickness (3mm to 1000mm) and micro-sanded, mainly used for flat components produced by vacuum bag or positive pressure systems.

FPS – Flexible Panel Scrimmed are rigid panel sheets attached to an open weave fibre glass fabric scrim on one side with a styrene soluble adhesive. The sheets are cut in a grid pattern to produce a flexible panel able to conform to curved surfaces. Standard grid size is 50.8mm x 25.4mm. FPS can be used with standard laminating processes such as contact moulding and resin infusion processes.

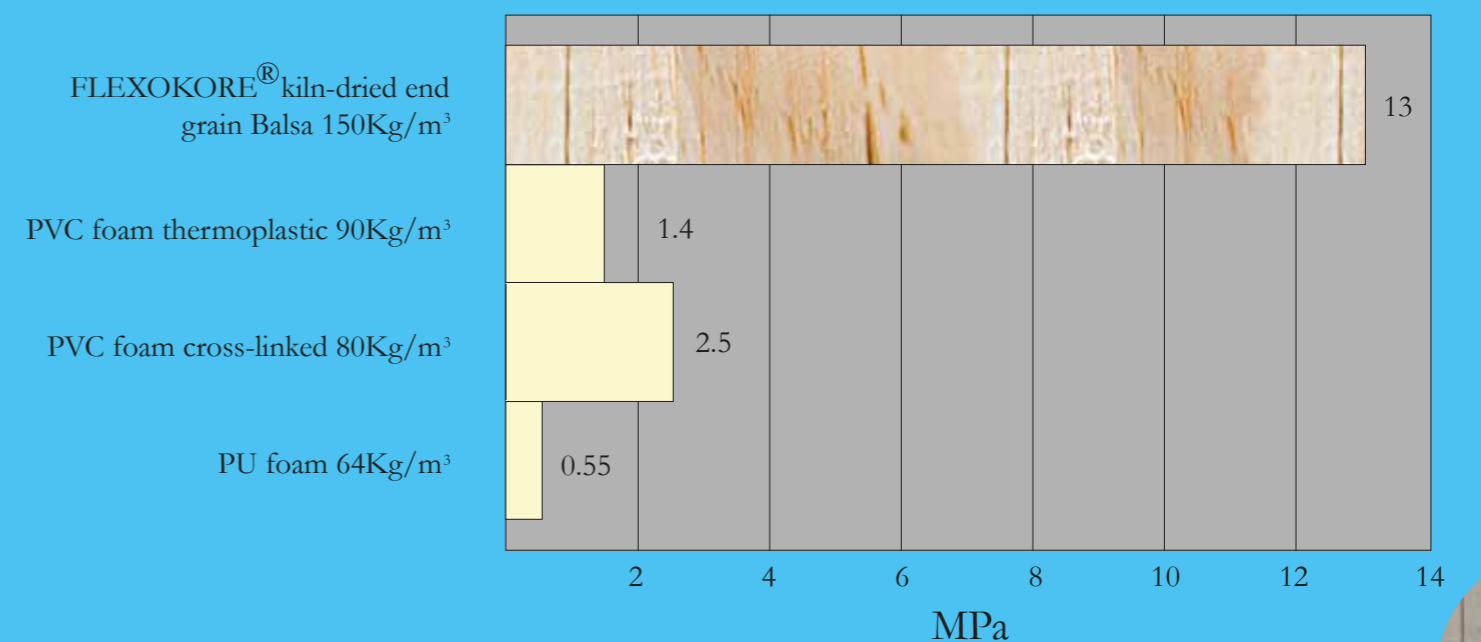
Various bespoke configurations available by request.



[TENSILE STRENGTH]

Tensile Strength is a measure of the ultimate strength of a material in tension. The graph below compares values of Tensile Strength for various core materials. The values have been obtained from manufacturers' published literature.

Tensile Strength





[CLEAVAGE STRENGTH]

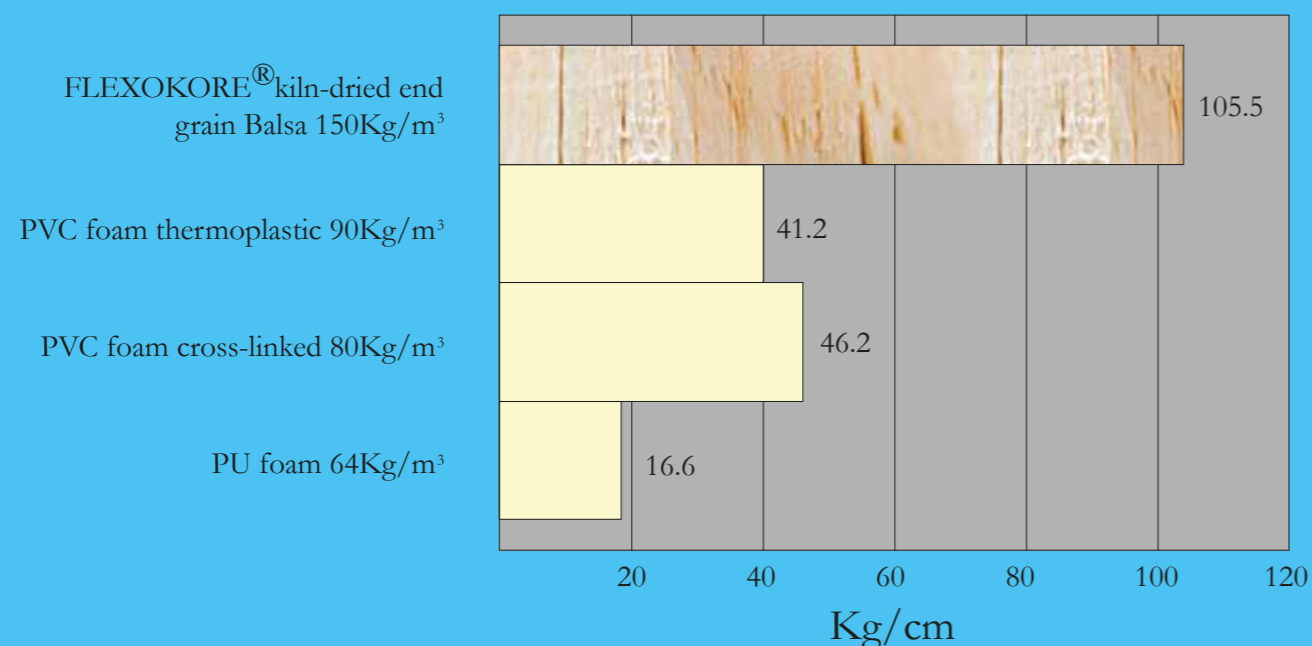
Tests according to ASTM D-1062 were carried out on cored laminate samples. The test procedure and laminate construction was identical throughout, except for the core material used. The test was carried out on samples of dimensions 3" x 3" (76.2mm x 76.2mm). The test was carried out at 22°C and 55% relative humidity and at a rate of 0.05"/minute (1.27mm/minute). Samples were tested to failure.

The construction was as follows;

- 2 layers of 1.5oz (4.67g) MAT
- 1/2" (12.7mm) CORE
- 2 layers of 1.5oz (4.67g) MAT
- 30/70 glass/resin & MEKP catalyst

The cleavage strength of the material tested was determined by dividing the total load by the width of the test specimen.

Cleavage Strength



FLEXOKORE® [PROPERTIES]

FLEXOKORE® in sandwich construction offers:

- Exceptional and superior high strength to weight ratio
- Exceptional shear properties
- Exceptional flexural stiffness and strength
- Exceptional bonding and cleavage strength
- Exceptionally high tensile and compressive strengths
- High impact and fatigue resistance
- High temperature resistance, -200°C to +160°C
- Fire resistance; balsa acts as an insulating and ablative layer in a fire with the core charring slowly allowing the non-exposed skin to remain structurally sound
- Sound and thermal insulation
- Cost effective core and renewable resource

FLEXOKORE® has major classification society approvals including for use above and below the water line.

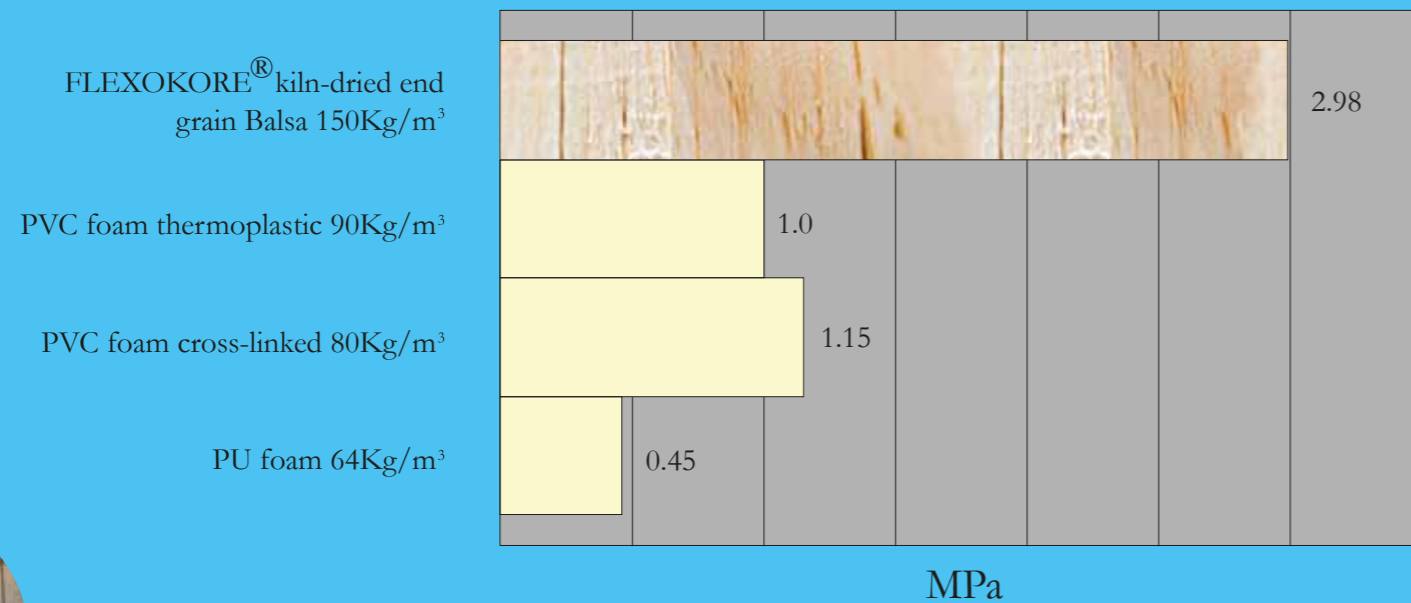


[CORE SHEAR STRENGTH]

Under bending loads the core of a sandwich laminate is put into shear. It follows that one of the most important properties of a core is its shear strength and stiffness.

The graph below compares values of core Shear Strength for various core materials. The values have been obtained from manufacturers' published literature.

Shear Strength



[FLEXURAL STIFFNESS AND STRENGTH OF CORED LAMINATES]

Tests according to ASTM C 393 were carried out on cored laminate samples. The test procedure and laminate construction was identical throughout, except for the core material used. The quarter-point load method was used to minimise local crushing. The test was carried out on sample panels of dimensions 5" x 20". The test was carried out at 22°C and 55% relative humidity and at a rate of 0.05"/minute (1.27mm/minute). Samples were tested to failure.

The construction was as follows;

- 2 layers of 1.5oz (4.67g) MAT
- 1/2" (12.7mm) CORE
- 2 layers of 1.5oz (4.67g) MAT
- 30/70 glass/resin & MEKP catalyst

Flexural Strength

