



# 3DF

THREE DIMENSIONAL FIBERBOARD

## An innovative Wood-Based Composite

### DESCRIPTION

3DF - Three Dimensional Fiberboard is an innovative wood based composite for compression moulding processes. The panels allow infinitive design possibilities: building deep structures, elegant arcs and curves is now possible with a single operation. During the development of the furniture element concept, 3DF also allow to define the inclusion of details for fixing systems or others to guarantee a final product easy to build and with built in screws. 3DF is produced with a formaldehyde free thermoplastic glue, with the action of temperature and pressure can be shaped in required densities and thicknesses. On top, the surface achieved is perfect for lacquering, and powder coating is also possible. Depending on bending radius and structure deepness, can be surfaced with thin CPL or 3D foil directly at the moulding process. The product gives you design freedom to projects, combined with the advantages of a sustainable and controlled wood based panel.

### PROPERTIES



### APPLICATIONS

3DF is intended for interior applications in horizontal and vertical surfaces where design, appearance, quality and durability are important features. Product is perfect for interior doors, kitchen doors and front panels, seats, bedheads and furniture fronts, office and living room partitions and curve and acoustic panels.



### PRODUCT RANGE

Panel Size [mm]	Thickness [mm]	Density [kg / m <sup>3</sup> ]	Colour
2440 x 2100	5,7	600	natural
	8,5	600	natural
	17	500	natural
	30	440	natural

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### INFORMATION ON USE

For standard moulding shapes and structures a process temperature of 130°C and roughly 2 minutes are needed to process thin 3DF. 3DF in higher thickness can be used to obtain complex and deep structures (>2 mm), it is recommended to increase the moulding press temperature up to 140°C – 200°C and extend the pressing time.

The bending strength of the compressed parts can be increased either by raising the pressure or the press closing speed. Choosing between different press setups gives you the possibility to increase the surface density of moulded part or obtain a more homogeneous density profile that maximize the internal bond.

The lacquering behaviour of the moulded panels is significantly better than a standard MDF due to a closed surface, in some cases process steps or quantity of lacquer can be reduced.

In particular the surface of the deeper parts of a moulded panel is much smoother than at a CNC milled MDF. This optimizes the surface coating quality of the deeper areas.

Due to the thermoplastic glue used in the production process the product presents a slight higher swelling face compared to the standard MDF at equal densities. But still are EN 622-5 values achievable by increased density. Nevertheless, the product sealing and covering must be well chosen and is particularly important for applications with moisture exposure.

Standard equipment to saw and sand wood based boards can be used to process 3DF. Different embedded compositions can also be added to the part if projected in mould design, that allows an easier incorporation of screws and fittings afterwards.

A systematic investigation revealed an almost linear correlation between the moulded panel density and the mechanical properties, depending on the density profile and therefore from the moulding press process parameters.

Compressed 3DF presents also a high heat resistance and stability, resulting in a big advantage for your production process: It can be taken-out directly from the hot shape without re-cooling and without deformation.

Additionally you can play with the thickness of your final product using several 3DF boards, two or more boards can be stacked and shaped without any glue between with resulting suitable mechanical properties.

As example the table below shows the mechanical characteristics achieved by pressing 3DF to a final density of 970 kg/m<sup>3</sup>

Initial Thickness	5,7 mm	8,5 mm	17 mm	30 mm	
PROPERTIES AFTER PRESS	Thickness [mm]	3,6	5,2	8,7	13,7
	Density [kg/m <sup>3</sup> ]	970	970	970	970
	IB [N/mm <sup>2</sup> ]	2,7	2,1	2,8	2,0
	MOR [N/mm <sup>2</sup> ]	39	40	46	46
	MOE [N/mm <sup>2</sup> ]	3400	3900	4000	4700
	24 h Swelling [%]	12	12	9	5

\*Values at standard conditions 20°C / 65% r. h.

Note: These information must be taken as guidelines and do not exempt the processor from the necessity to make tests to adjust the parameter setting at the own equipment for the use of 3D mouldable panels and to check the fulfilment of his requirements.

### CERTIFICATIONS

Also available as (pay attention to certified products):



The mark of  
responsible forestry  
FSC® C009049



The recommendations in this document serve as an example only and are not intended to define all of the possible conditions of use or alteration of Sonae Arauco products. It is up to each user to identify and define their own operating conditions in accordance with the use, type of equipment and other raw materials used in the process concerned. Sonae Arauco cannot, therefore, be held liable for any loss or damage arising from the application of these recommendations.