Website: www.tv4newood.it
Email: tv4newood@wde-maspell.it
Phone: +39 (0)744 800672

Description of TVW wood according to the definitions of EN/CEN/TS 15679:2007 Thermal modified Timber

DELIVERABLE D_2.16

TV4NEWOOD PROJECT

AGREEMENT NUMBER: ECO/12/333079/SI2.653690

Co-funded by the Eco-innovation Initiative of the European Union

Website: www.tv4newood.it
Email: tv4newood@wde-maspell.it
Phone: +39 (0)744 800672

The scope of CEN/TS 15679 is to provide terms and definition of Thermally Modified Timber (§ 3) and of characteristics (§ 5) with references to the standards. This standards also provides a guideline for the assessment of characteristics (§ 6) and marking (§ 7).

Definition of TMT of the CEN/TS 15679 is:
"3.1 Thermally modified timber
Wood at which the composition of the cell wall material and its physical properties are modified by the exposure of temperature higher than 160°C and conditions of reduced oxygen availability. The wood is altered in such way that at least some of the wood properties are permanently affected though the cross section of the timber."

The Thermo-Vacuum Wood totally fits this definition and hence it can be defined a Thermally Modified Timber where the reduced oxygen availability is produced by application of vacuum and some of the wood properties are permanently affected though the cross section of the timber, as determined by the task 4 of the TV4newood project.

Listed definitions of Characteristics that can be affected by the process (and reference to relative standards) are (X: the ones measured in the project):

§ 5.2	EMC	X
§ 5.3	Dimensional stability	X
§ 5.4	Durability	X
§ 5.5	Density	X
§ 5.6	Mechanical properties	X
§ 5.7	Thermal conductivity	
§ 5.8	Bonding	
§ 5.9	Coating	
§ 5.10	Emission	X
§ 5.11	Reaction to fire	
§ 5.12	Durability	X
§ 5.13	Colour	X

This publication has been produced with the assistance of the European Union. The contests of this publication are the sole responsibility of Wde-Maspell and can in no way be taken to reflect the views of the European Union.

The majority of this properties are measured in the project. Moreover in the project is measured the Mass Loss (ML) which is not considered in the standard. We believe that ML is an important indicator of the degree of modification and that it should be included in the next revision of the standard.

The guidelines proposed in the standard for the assessment of characteristics, in compliance with the requirements, concern the sampling (§ 6.2), the factory production control (§ 6.3) and marking (§ 7).

Such guidelines are essentially a limited version of the ones proposed in "*D 2-5 Manual for the standard production of* Thermo-Vacuum Wood" which considers a higher sampling and stricter control procedures.

In conclusion It can be stated that the description of Thermo-Vacuum Wood accords with the definition of *CEN/TS 15679* since it fulfils the following rules and definitions:

- Temperature higher than 160°C during the process;
- Reduced oxygen availability during the process;
- Permanent modification of properties though the cross section of the timber."
- Measurement of the affected properties;
- Control of factory production and marking of timbers.

By a technical point of view* the Thermo-Vacuum Wood is a Thermally Modified Timber produced with a dry process in a open system.

*according to: Hill, C., (2006) *Wood Modification – Chemical, Thermal and Other Processes*, Wiley Series in Renewable Resources, John Wiley and Sons, Ltd.

This publication has been produced with the assistance of the European Union. The contests of this publication are the sole responsibility of Wde-Maspell and can in no way be taken to reflect the views of the European Union.