

# Environmental Product Declaration

## Stonewool FIBRANgeo

FIBRAN SA

### Verification statement

This declaration has been developed in accordance with ISO 14025.

### Verifier

IHU (International Hellenic University)

### Date of Review

July 2017

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July 2017



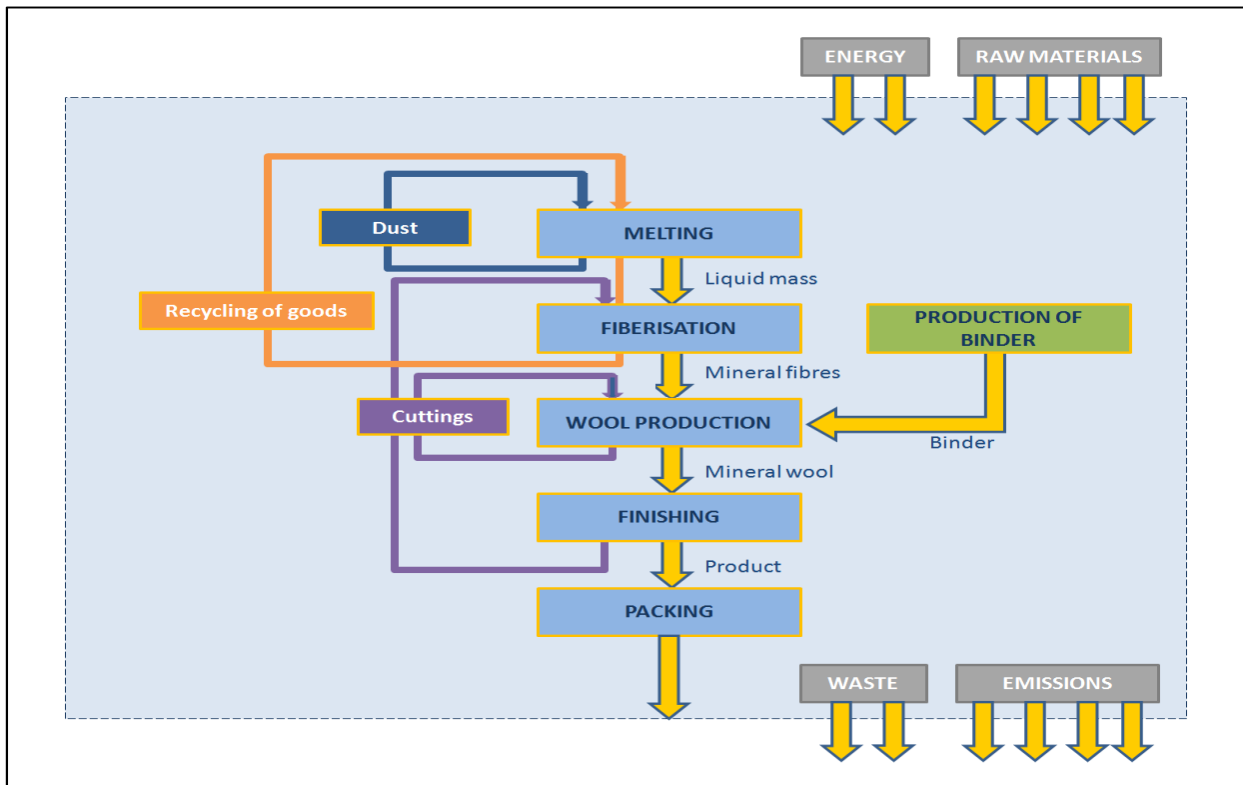
## THE COMPANY

<b>Organisation:</b>	Insulating material industry FIBRAN SA
<b>Address:</b>	60 km Thessaloniki – Oraikastro, 57013 Oraikatsro Thessaloniki
<b>Company's website:</b>	<a href="http://www.fibran.gr">www.fibran.gr</a>
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## INFORMATION ABOUT THE PRODUCT AND THE LCA

<b>Product description:</b>	FIBRANgeo is the commercial name of mineral wool (stone wool) as produced and supplied by FIBRAN SA. It is a natural fibrous material for insulation against heat, cold, fire and sounds. FIBRANgeo is made from stone raw materials. The product is used in building applications.
<b>Coverage of LCA:</b>	LCA conducted for the productive process. The environmental evaluation of FIBRANgeo includes the excavation and the transport of raw materials, the productive process and the transportation of the final product.
<b>Functional unit:</b>	The functional unit (FU) is 1000tn of material.

## SYSTEM BOUNDARIES



## RESOURCE AND ENERGY USE

### Material use

Raw material	Relative weight of components (w/w)
Product weight	100%
Amphibolite	69%
Bauxite	11%
CaO	20%
Phenol-urea-formaldehyde resin	
Dust oil	

### Scaling of environmental impacts for FIBRANgeo stone wool products

FIBRANgeo stone wool is available in different thicknesses and densities, on which the production rate is depended. The thinner and lighter products have the smaller output. So, the output is varied from 3000 kg/h to 5500kg/h with average the 4500 kg/h.



### **Environmental performance**

FIBRANgeo is produced in Greece with the technology of electrical furnances. As the main source of electrical energy in Greece is the combustion treatment of lignite, its production cannot be compared with the production of mineral wool in other countries.

## EMISSIONS AND ENVIRONMENTAL IMPACTS

### Emissions to air and water and generation of waste

Inventory Results		kg/1000tn FIBRANgeo	kg/kg FIBRANgeo
Emissions to air	<b>CO<sub>2</sub></b>	<b>801940,8</b>	<b>0,80</b>
	<b>CO</b>	<b>72126,4</b>	<b>0,07</b>
	CH <sub>4</sub>	1856,8	0,0002
	N <sub>2</sub> O	21,6	2,16*10 <sup>-3</sup>
	<b>SO<sub>2</sub></b>	<b>11987,6</b>	<b>0,012</b>
	NO <sub>x</sub>	3485,4	0,003
	HCl	322,3	3,2*10 <sup>-4</sup>
	HF	65,0	6,5*10 <sup>-5</sup>
	particles	1287,4	0,0013
	NMVOG	1444,4	0,0014
	Emissions to water	COD	191,1
BOD <sub>5</sub>		30,9	3,009*10 <sup>-5</sup>
Inorganic salts		1714,7	0,0017
	<b>Liquid waste from the production of FIBRANgeo</b>	<b>109200,0</b>	<b>0,11</b>
Solid waste	ash	41102,9	0,04
	<b>Production waste</b>	<b>46822,4</b>	<b>0,05</b>

\* The more important outputs are represented in bold.

### Potential environmental impact

Nature of outputs	Impact category	Equivalent unit	Total per kg of FIBRANgeo (equivalent unit/kg)	Total per year (equivalent unit/year)
AIR	Global warming	kg eq. CO <sub>2</sub>	1,4554	6,93*10 <sup>-12</sup>
AIR	Acidification	kg eq. SO <sub>4</sub>	0,03	1,73887*10 <sup>-11</sup>
AIR	Eutrophication	kg eq. PO <sub>4</sub>	0,0007	6,09818*10 <sup>-13</sup>
AIR	Smother	kg eq. SPM	0,0147	7,73684*10 <sup>-11</sup>
SOLID	Solid waste	kg	0,09	1,02273*10 <sup>-11</sup>
LIQUID	Liquid waste	kg	0,1119309	1,27194*10 <sup>-11</sup>

## END OF LIFE CONSIDERATIONS

The FIBRANgeo stone wool insulation is 100% recyclable, is not considered as a hazardous waste and shall be disposed of according to State and local environmental regulations. Traditionally, the main dispose route for stone wool has been land filling, due to the lack of the appropriate separation process of the different building materials.

## REGULATORY INFORMATION ON PRODUCT

The European Standard 13262:2009 has been taken into account, as it specifies the product's characteristics, technical specifications and includes procedures for testing, evaluation of conformity, marking and labelling.

## REFERENCES