

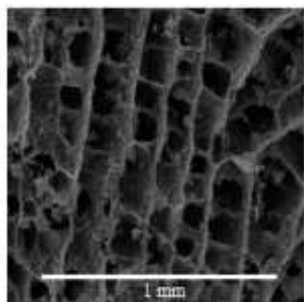


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## **METHOD FOR RECYCLING WASTE MATERIAL**

A revolution in material recycling



Category:

**Engineering**

Patent Ownership:

**UNIVERSITA' DI TRIESTE**

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**Patent Pending in Europe**

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**Available**

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### **Brief description**

Traditional approach on recycling materials is based on waste reuse in order to produce other similar products. Nevertheless, if there is no possibility to remanufacture discarded materials, they will be burnt or landfilled.

The new proposed method is based on the total reuse of waste materials including the non-recyclable ones such as fiberglass, carbon fiber, building constructions waste and everything that could be reduced to powder.

The process uses only biopolymer as matrix including the grinded waste powder within its cells. A freeze-dry process transform this solution in to a new green sound and heat insulation material (100% recyclable).

### **Innovative aspects and main advantages**

The invention relates to a composite material (open cell foam) having a high degree of porosity obtainable from waste.

The process is CO<sub>2</sub> balanced since the biopolymer is a neutral carbon emission material. The process uses only water which will be totally reusable in the next production cycle

since no pollutant is consumed during manufacturing process. Hence, the waste is transformed to a new life insulation product according to circular economy guidelines. It will perform for a long time and at the end of its life would be totally recyclable.

### **Applications**

Thermal and acoustical insulating panels for naval industry (filler), automotive (filler), building (double leaf walls filler and sound absorbing external panels), Industry (filler).

### **Potential market**

There is no limitation of potential market since thermal and acoustic insulation are needed almost everywhere. Furthermore, the need of recycling composite or ceramic materials is a paramount issue worldwide.

### **Development status**

The material is ready and tested for almost all application. The next step concerns the scale-up of the process.

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