

## **ELABORATION AND CHARACTERIZATION OF AN INSULATION MATERIAL BASED WASTE GLASS**

**F. Benhaoua<sup>1</sup>, A. Ayadi<sup>1</sup>, N. Stiti<sup>1</sup>, R. Benzerga<sup>2</sup>, L. Legendre<sup>2</sup>**

*1. Research unit: materials, processes and environment, University of Boumerdes, Algeria*

*(2) IETR, University of Rennes1, France*

E-mail: azzedinea@yahoo.fr

### **Abstract**

The policy of energy conservation and construction of acoustic comfort is the basis of search for new compounds to improve the performance of materials currently on the market. It is within this context that our work to obtain a building material much lighter with properties improved thermal and acoustic insulation from waste glass and calcium carbonate as a foaming agent.

The manufacture of foam glass from waste glass recycling is a way that fits with the objective of environmental protection and maximum recycling of household waste. The energy savings achieved through the use of cullet result in a decrease in air pollution, especially carbon dioxide (CO<sub>2</sub>), and reduced the price of glass.

The results of the microstructure clearly demonstrate that the addition of CaCO<sub>3</sub> increases the porosity of the foam glass which gives a low thermal conductivity and increases its thermal insulation capacity ( $\lambda = 0.026 \text{ W/Nm}^2$ ), which promotes its use in the building industry.

**Keywords:** cullet, environment, energy, recycling; thermal insulation.