

Waste glass and tire based glass-foams have been studied to produce a low-cost microwave absorbing material that could be used in building industry. These composites show, firstly, an heterogeneous structure induced by the degradation of the tires during the heat treatment, and secondly, low dielectric loss partially induced by their low densities. In order to avoid the heterogeneity of the samples, two different composites, using tire waste, have been tested. For the first composite, tires were coated with a refractory material, for the second, tires were pre-calcined before composite preparation. The use of calcined tires, which contain more than 99 wt.% of carbon, has led to homogenous composites with higher dielectric loss ( $\tan\delta = 0.33@10\text{GHz}$ ). The absorption performance simulation of these composites shows encouraging results. A low reflection (close to  $-30\text{ dB @ } 11.90\text{ GHz}$ ) and a large absorption bandwidth have been obtained for carbon (calcined tires) loaded foam composite with a thickness of 12 mm. © 2020 Elsevier B.V