The foams glass whose porosity is very important, are counted among the new glass products that meet certain desired comfort needs in the particular building area (thermal and acoustic insulation). The objective of this study is to determine the influence of the carbon fibers addition influence on the porosity, the thermal insulation and dielectric loss of foams glass prepared by sintering at 800 °C, which opens the way to foam glass many possibilities for industrial to extend their opportunities that are very varied from thermal insulation to electromagnetic waves absorption. The carbon fibers addition used for this study is 1, 2, 3.5 and 5 wt% in relation to the foam glass load. Physico-chemical analysis techniques such as SEM-EDS, porosity, thermal insulation, differential thermal analysis, and dielectric tests have been used for the foams glass characterization. The obtained microstructure results clearly show that the 5 wt% carbon fibers addition increases the foam glass porosity which leads to low thermal conductivity (λ=0.0281 W/m°C) and increases its thermal insulating capacity. Furthermore the specific dielectric properties as real permittivity (ε'=2.7619) and high dielectric loss (tan δ=0.02969) favor the use of these glass filled foams with carbon fibers in the electromagnetic waves microwave absorption in the weakest working frequencies (mobile phones and Wi-Fi). 