Microwave-Assisted Thermal Inertization of Asbestos-Containing Materials

Roberto Rosa, Paolo Veronesi, and Cristina Leonelli

Dipartimento di Ingegneria "Enzo Ferrari", Universita' degli Studi di Modena e Reggio Emilia, Modena, Italy

Asbestos and asbestos-containing materials are classified as hazardous waste by European regulation. Microwave assisted thermal treatments proved to be particularly efficient in modification of the crystalline structure of such insulating materials. They are capable of volumetrically heating the fibrous crystalline form of asbestos and decomposing it into inert magnesium silicates. This contribution presents the simulation of an open 2.45 GHz cavity operating with three magnetrons of 6 kW each. The phases of the three magnetrons were varied and the EM field density was simulated using Concerto 3.5 within the asbestos-containing material during static or continuous treatment. Field tests have proven the accuracy of the simulation procedure.