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From waste CRT glasses to foam glass: A case study to re-use electric and electronic end of life materials

Necessity of recycling industrial wastes figures among daily environmental and economic priorities. Glass is known as an "eternal" recyclable material. Generally, glass cullet is re-used in the container and window glass industry. For cathode ray tube (CRT) glass, the situation is different. This work is devoted to search of possible applications for waste cathode-ray tubes (CRTs) glasses. Heavy elements contained in the glasses are required be buried land field by producers and recyclers of CRT's. Foam glass seems to be the most promising for waste CRT glasses recycling. Today, commercial foam glasses are used for thermal and acoustic insulation applications resulting of their porous structure. The foam glass is obtained after heat treatment of a powder mixture of the CRT glass and reducing agent such as titanium nitride or silicon carbide. The basic principle of foam glass manufacture is to generate a gas, by reaction with the reducing agent. The gas expands thus producing a structure of cells to form a porous body.

Biography

Francois O Méar has completed his PhD from Montpellier II University and Post-doctoral studies from Cambridge and Tohoku University. He is an Assistant Professor at Lille I University and specifically in the Catalysis and Solid State Chemistry Unit. He is working on the formulation of glass matrices for unconventional applications (e.g. containment matrices for nuclear waste, seals glass for SOFC) and on the synthesis of self-healing glassy matrices. He has published more than 35 papers in reputed journals, 1 patent and 2 book chapters.

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