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(54) Title: POROUS COMPOSITE MATERIAL FOR SOUND ABSORPTION AND METHOD OF PRODUCING SAME

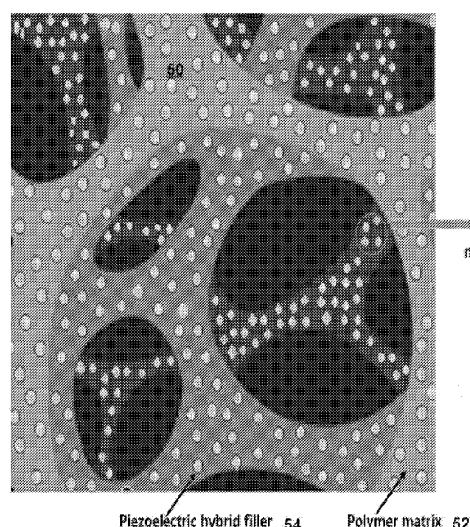


FIG. 2A

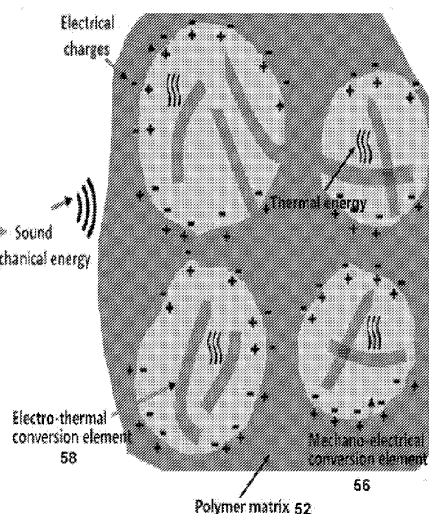


FIG. 2B

(57) Abstract: A porous composite material for sound absorption and a method of producing it. The method comprising steps of preparing a mixture of mechano-electrical conversion elements and electro-thermal conversion elements in an organic solvent, mixing the mixture with an aqueous solvent to precipitate a piezoelectric hybrid filler material, mixing the piezoelectric hybrid filler with a precursor, and performing a foaming operation with the precursor to produce the porous composite material. In particular, the mechano-electrical conversion elements comprises one of a piezoelectric polymer (i.e. polyvinylidene fluoride (PVDF)-based polymer) or a polymeric electret (i.e. polyimide, polypropylene, polyethylene terephthalate, polytetrafluoroethylene, polymethylmethacrylate, ethylene vinyl acetate cyclic olefin copolymers), and the electro-thermal conversion elements comprises one of an electrical conductive element (i.e. carbon nanotubes, graphene, carbon black) and a dielectric lossy element (i.e. aluminium nitrate, aluminium chloride,

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