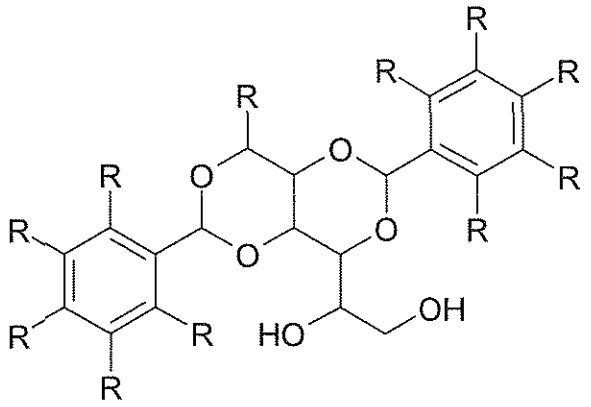
The problem is solved by a composition comprising an at least essentially amorphous polymer and a nucleating agent of formula (1).

Summary

In one aspect, the present disclosure relates to a composition for the preparation of a polymeric foam, and in particular a masterbatch composition, comprising

(i) an at least essentially amorphous polymer resin selected from the group consisting of poly(methyl methacrylate), polyvinyl chloride , polystyrene, polystyrene copolymers polycarbonate, polysulfone, poly(ether sulfone), poly(p-phenylene ether), polyethylene terephthalate glycol-modified, and mixtures or blends thereof;

(ii) a nucleating agent of formula (1)



(1)

wherein

each R independently is selected from the group consisting of hydrogen, C_1-C_{10}-alkyl, C_5-C_{10}-cycloalkyl, phenyl, phenyl substituted with 1, 2, 3 or 4 C_1-C_4-alkyl groups, and C_1-C_4-alkylene-phenyl.

In another aspect, the present disclosure relates to a foamed polymeric article comprising (i) 80 % to 98.99 % by weight of an at least essentially amorphous polymer, (ii) 0.01 % to 0.5 % by weight of a nucleating agent of formula (1), (iii) 1 to 10 % by weight of a non-hydrocarbon and/or organic blowing agent and (iv) 0 to 18.99 % by weight of further additives, wherein (i) and (ii) are as defined herein.

In a further aspect, the present disclosure relates to a method for preparing a foamed polymeric article as disclosed herein, comprising the steps of

(a) adding a nucleating agent of formula (1) and optionally further additives to an at least essentially amorphous polymer to obtain a polymer composition;

(b) melting the polymer composition obtained in step (a) to obtain a polymer melt; and

(c) extruding the polymer melt of step (b) in an extruder in the presence of a blowing agent;

(d) cooling the extruded polymer melt and forming a foamed polymeric article.

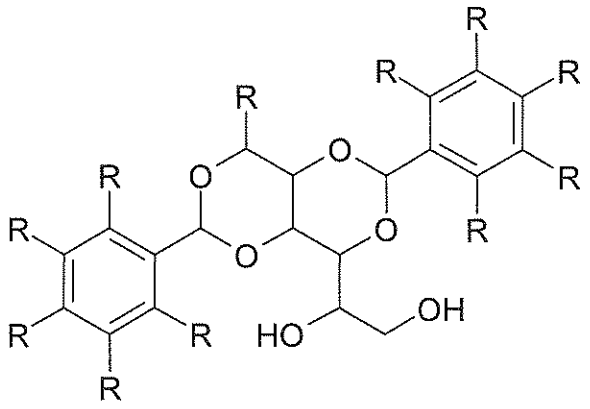
In yet another aspect, the present disclosure relates to the use of the foamed polymeric article as disclosed herein as an insulation board, a decorative article, a packaging material for food or electronics, as sound insulation, or in automotive parts.

Detailed Disclosure of Embodiments

The subject of the present invention is a composition for the preparation of a polymeric foam, and in particular a masterbatch composition, comprising

(i) an at least essentially amorphous polymer resin selected from the group consisting of poly(methyl methacrylate) (PMMA), polyvinyl chloride (PVC), polystyrene (PS), polystyrene copolymers, polycarbonate (PC), polysulfone, poly(ether sulfone) (PES), poly(p-phenylene ether) (PPE), polyethylene terephthalate glycol-modified (PETG), and mixtures or blends thereof;

(ii) a nucleating agent of formula (1)



(1)

wherein

each R independently is selected from the group consisting of hydrogen, C_1-C_{10}-alkyl, C_5-C_{10}-cycloalkyl, phenyl, phenyl substituted with 1, 2, 3 or 4 C_1-C_4-alkyl groups, and C_1-C_4-alkylene-phenyl.

Preferably, each R independently is selected from the group consisting of hydrogen, C_1-C_4-alkyl, C_5-C_6-cycloalkyl, phenyl, phenyl substituted with 1 or 2 C_1-C_3-alkyl groups, and benzyl.