overcomes or at least ameliorates the technical disadvantages discussed above.

Summary

~~In a first aspect, there is provided~~The present disclosure relates to a method of preparing a dual curable polymer, the method comprising the steps of: (a) reacting a peripheral reactive group of a dendritic polymer with a cross-linker compound having two or more moisture curable functional groups to form a functionalized dendritic polymer terminated with said moisture curable functional groups; and (b)reacting said functionalized dendritic polymer with an acrylate compound to form a substituted dendritic polymer having a mixture of acrylate functional groups and at least one peripheral moisture curable functional group.

In a first aspect, there is provided a method of preparing a dual curable polymer, the method comprising the steps of: (a) reacting a peripheral reactive group of a dendritic polymer with a cross-linker compound having two or more moisture curable functional groups to form a functionalized dendritic polymer terminated with said moisture curable functional groups; and (b) reacting said functionalized dendritic polymer with an acrylate compound to form a substituted dendritic polymer having a mixture of acrylate functional groups and at least one peripheral moisture curable functional group.

Advantageously, the disclosed method is capable of synthesizing dual curable (moisture and UV-curable) polymer compositions comprising globular, monodisperse dendritic core structures functionalized with at least one type of UV curable functional group, e.g., acrylate and at least one type of a moisture curable functional

group, e.g., isocyanate. Advantageously, the presence of at least these two types of functional groups leads to the formation of a "dual-curable" dendritic polymer composition, i.e., a dendritic polymer composition that is both moisture curable and/or radiation curable.

Advantageously, a dual-cure dendritic polymer composition prepared according to the above method will comprise all the technical benefits of UV curing, including but not limited to,

- fast curing (in seconds);

selectively chosen to confer either hydrophilicity or hydrophobicity onto the dendritic polymer composition. Accordingly, the disclosed method may be employed to prepare either a waterborne dual cure dendritic composition or a solvent-based dual cure dendritic polymer.

~~In a second aspect, there is provided~~The present disclosure relates to a dendritic polymer having a mixture of peripheral functional groups selected from UV curable functional groups and moisture curable functional groups, wherein said dendritic polymer comprises a total of at least a total of 8 to 128 functional groups per polymer molecule. The moisture curable functional groups may comprise at least one peripheral moisture curable functional group.

In a second aspect, there is provided a dendritic polymer having a mixture of peripheral functional groups selected from UV curable functional groups and moisture curable functional groups, wherein said dendritic polymer comprises at least a total of 8 to 128 functional groups per polymer molecule, and wherein the moisture curable functional groups comprise at least one peripheral moisture curable functional group.

In a third aspect, there is provided a polymer composition comprising the dendritic polymer as described above and one or more of the following:

(a) a catalyst;

(b) a silane-based curing compound;

(c) a polyol;

(d) a sterically hindered amine light stabilizer;

(e) a UV absorber;

(f) a photoinitiator; and

(g) a solvent comprising at least one hydroxyl functional group.

In another ~~aspect~~embodiment, there is provided a polymer composition comprising (a) a dual curable dendritic polymer according as prepared or described above; (b) a catalyst; and (c) a photoinitiator. This polymer composition may be provided as a one-pot system.

In yet another ~~aspect~~embodiment, there is provided a two-component, dual curable composition, comprising a Side A and a Side B, said Side A comprising:(a) a dual curable dendritic polymer as prepared or described above; (b) curing catalyst; (c) a photo-initiator; and wherein Side B comprises:(d) cross-linkers.

In another ~~aspect~~embodiment, there is provided a substituted dendritic polymer prepared according to the method of the first aspect. In another ~~aspect~~embodiment, there is provided a substrate that has been coated with the above defined dual curable dendritic polymer.