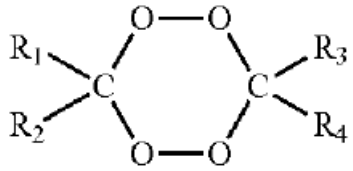
CLAIMS

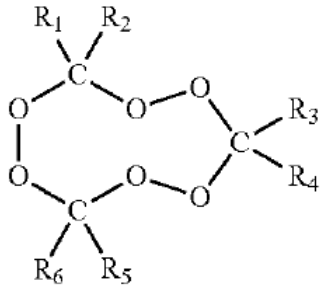
1. A masterbatch comprising one or more organic peroxides in liquid form, dispersed in a polymeric matrix comprising at least 50 wt % of a bioresin, wherein the polymeric matrix has a porosity, expressed as percentage of voids on the volume of the matrix, of 2.5-70 vol % and the concentration of water in the masterbatch is kept to 2000 ppm or less, based on the total weight of the masterbatch, wherein the bioresin is polylactic acid.

2. The masterbatch according to claim 1, wherein at least one of the one or more organic peroxides is an organic peroxide having a one hour half-life at a temperature of 77^{o}C, or more.

3. The masterbatch according to claim 2, wherein at least one of the one or more organic peroxides is selected from the group consisting of t-butylperoxy 2-ethylhexyl carbonate, 2,5-dimethyl-2,5-di(tert-butylperoxy)hexane, and cyclic ketone peroxides having a structure according to any one of the following formulae:



(I)



(II)

wherein R^1-R^6 are independently selected from the group consisting of hydrogen, C_1-C_{20} alkyl, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_7-C_{20} aralkyl, and C_7-C_{20} alkaryl, which groups may include linear or branched alkyl moieties; and each of R^1-R^6 may optionally be substituted with one or more groups selected from the group consisting of hydroxy, alkoxy, linear or branched alkyl, aryloxy, ester, carboxy, nitrile, and amido.

4. The masterbatch according to claim 3, wherein the cyclic ketone peroxide is 3,6,9-triethyl-3,6,9-trimethyl-1,4,7-triperoxonane.

5. The masterbatch according to claim 1, comprising 4-40 wt % of organic peroxide.

6. The masterbatch according to claim 1, wherein the polymeric matrix has a porosity of 10-65 vol %.

7. The masterbatch according to claim 1, further comprising a solvent.

8. A method for the modification of a polymer, comprising adding the masterbatch according to claim 1 to a polymer.

9. The method according to claim 8, wherein the modification is improving the melt strength of polylactic acid.

10. A process for the preparation of a masterbatch according to claim 1, comprising

    (i) providing a polymeric matrix comprising at least 50 wt % of a bioresin and having a porosity, expressed as percentage of voids on the volume of the matrix, of 2.5-70 vol % and a water content of less than or equal to 2000 ppm and
    (ii) impregnating said polymeric matrix with one or more peroxides in liquid form,

    wherein the bioresin is polylactic acid.

11. The process according to claim 10, wherein the water content of the bioresin is less than or equal to 1000 ppm.