improve the bonding strength and adhesion to the polymer, thereby forming a strong composite layer.

[0013] There is provided the respective polymeric coating suspension obtainable according to the process as defined above.

[0014] There is provided a respective polymeric coating suspension comprising

a) 1.0 to 11.0 wt% of clay or silane modified clay,
b) 0.1 to 10.0 wt% of poly (acrylic acid) copolymer, which is a copolymer of acrylic acid (AA) with at least one other monomer selected from 2-ethylhexyl acrylate (EHA), β-carboxyethyl acrylate (β-CEA), methacrylamidoethyl ethylene urea (WAM II) and ethoxylated behenyl methacrylate (β-EM),
c) 1.0 to 15.0 wt% of other polymers and
d) 70 to 97 wt% of water or mixture of water with of 2-propanol.

[0014a] According to a second aspect, there is provided a polymeric coating suspension that comprises

a) 1.0 to 11.0 wt% of clay or silane modified clay,
b) 0.1 to 10.0 wt% of poly (acrylic acid) copolymer, which is a copolymer of acrylic acid (AA), 2-ethylhexyl acrylate (EHA), β-carboxyethyl acrylate (β-CEA), methacrylamidoethyl ethylene urea (WAM II) and ethoxylated behenyl methacrylate (β-EM),
c) 1.0 to 15.0 wt% of other polymers and
d) 70 to 97 wt% of water or mixture of water with 2-propanol.

[0015] These suspensions advantageously show good bonding to plastic films, high transparency and flexibility combined with high water vapour and oxygen protection when being coated on plastic films. In one embodiment the other polymers in this suspension are selected from poly (vinyl alcohol) and block copolymers of ethylene and vinyl alcohol.

[0016] There is provided a method for making the silane modified clay by dispersing the clay in an aqueous solution and adding a silane or a mixture of silanes at a slow injection speed under high homogenization speed. Preferably the silane or silane mixture is added by injection with a flow rate of 0.1 to 3.0 ml/min and the speed of homogenization is in the range of 15,000 to 20,000 rpm of a turrax. Advantageously, this allows to uniformly intercalate silanes into clay sheet suspension in the high speed homogenization process. The silane is directly dispersed into aqueous clay suspension without using surfactants or organic solvent. With the present invention, it is feasible to prepare silane mixture modified clay product in a one-step process.

[0017] There is provided the use of silane modified clay obtained in a process for making a polymeric coating suspension for forming a barrier film on plastic films which comprises a polymer that has at least a hydroxyl functional group, a polymer that has a carboxyl functional group or mixtures thereof. Advantageously, the

5. The process of claim 4 wherein the starter is selected from benzoyl peroxide, butyl hydro peroxide, azobisisobutyronitril or a combination of butyl hydro peroxide and isoascorbic acid.

6. The process according to any of claims 1 to 5, wherein the clay is a silane modified clay.

7. A polymeric coating suspension that comprises

   a) 1.0 to 11.0 wt% of clay or silane modified clay,
   b) 0.1 to 10.0 wt% of poly (acrylic acid) copolymer, which is a copolymer of acrylic acid (AA), 2-ethylhexyl acrylate (EHA), β-carboxyethyl acrylate (β-CEA), methacrylamidoethyl ethylene urea (WAM II) and ethoxylated behenyl methacrylate (β-EM),
   c) 1.0 to 15.0 wt% of other polymers and
   d) 70 to 97 wt% of water or mixture of water with 2-propanol.

8. The suspension of claim 7, wherein poly (acrylic acid) is derived from a monomer mixture that comprises

   a) 50 to 90 wt% of acrylic acid,
   b) 5 to 30 wt% of 2-ethylhexyl acrylate,
   c) 0.5 to 10 wt% of β-carboxyethyl acrylate,
   d) 0.5 to 10 wt% of methacrylamidoethyl ethylene urea,
   e) 0.5 to 10 wt% of ethoxylated behenyl methacrylate.