Claims

1. A coating comprising a substrate having thereon one or more layer or film of a polyolefin dispersion composition of one or more polyolefin base polymer chosen from a polyolefin, a carboxylic acid functional polyolefin and a carboxylate functional polyolefin, from 1 to 40 wt.% or, based on the total solids of the polyolefin dispersion composition, of one or more olefinic stabilizing agent having an acid number (AN) of from 80 to 250, from 0 to 50 wt.%, based on the total solids of the polyolefin dispersion composition, of one or more coupling agent having an acid number (AN) of from 10 to 70 and having a melt index of from 500 to 5,000,000 grams of polymer melt passing in 10 minutes through a heated syringe or cylinder at 190 °C with a plunger loaded with 2.16 kg; and, dispersed in at least one of the polyolefin base polymer, the olefinic stabilizing agent which is a polymer or the coupling agent which is a polymer, at least one hindered phenolic antioxidant containing an ester linkage.

2. The coating as claimed in claim 1, wherein the phenolic antioxidant containing an ester linkage comprises at least one hydroxyphenylpropionic acid ester or a combination thereof with one or more second antioxidant.

3. The coating as claimed in claim 2, wherein the phenolic antioxidant containing an ester linkage is benzenepropanoic acid, 3-(1,1-dimethylethyl)-β-[3-(1,1-dimethylethyl)-4-hydroxyphenyl]-4-hydroxy-β-methyl- 1,1'-(1,2-ethanediyl) ester.

4. The coating as claimed in claim 1, wherein the total amount of hindered phenolic antioxidant containing an ester linkage loading ranges from 200 ppm to 10000 ppm of total polyolefin dispersion composition solids.

5. The coating as claimed in claim 1, wherein the amount of the one or more olefinic stabilizing agent comprises an olefin-carboxylic acid copolymer or a blend of two such polymers.

6. The coating as claimed in claim 1, wherein the one or more coupling agent comprises from 2 to 30 wt.%, based on the total solids of the polyolefin dispersion composition.

7. The coating as claimed in claim 1, wherein the one or more coupling agent is a maleic anhydride grafted polyolefin.

8. The coating as claimed in claim 1, wherein the one or more polyolefin base polymer comprises polyethylene, polypropylene, poly(alpha-olefin) copolymers, poly(alpha-olefin) terpolymers, and blends of any of these.

9. The coating as claimed in claim 1, wherein the substrate is a metal container, lid or closure for food or beverage.

10. The coating as claimed in claim 1 wherein a coating having a thickness of 10 microns exhibits a methyl ethyl ketone double rub resistance of 100 double rubs or more, or, preferably, 150 or more or, more preferably, 200 or above until the coating is cut through and the substrate becomes visible in any area according to ASTM D 5402-06, Method 3 (2011), using bleached cheese cloth (Grade 50) having 28x24 threads per 2.54 cm x 2.54 cm square and a 906 g (32 ounce) ball peen hammer, wherein the cloth is fastened with a wire to the flat end of the hammer and rubbed against the coating back and forth across the coating, the cloth being re-dipped into MEK every 25 double rubs.

11. A method of making an aqueous dispersion composition for making the coating as claimed in claim 1 comprising melt blending i) the hindered phenolic antioxidant containing an ester linkage, the polyolefin base polymer, the olefinic stabilizing agent, preferably, a polyolefin stabilizing agent, and the coupling agent, if any, or (ii) (a) melt blending the polyolefin base polymer, any coupling agent, and the olefinic stabilizing agent and (b), separately, melt blending the hindered phenolic antioxidant in any of a polyolefin base polymer, polyolefin stabilizing agent or coupling agent which is a polymer to form an antioxidant dispersion; followed by dispersing the melt of (i) or a melt of both (ii) (a) and (b) in water along with a sufficient amount of one or more volatile base to neutralize from 50 to 300% of the carboxylic acid in the polyolefin dispersion composition to form an aqueous dispersion.