BLEED RESISTANT, OIL-EXTENDED OLEFIN BLOCK COPOLYMER COMPOSITION WITH MICROCRYSTALLINE WAX

BACKGROUND

[0001] Olefin block copolymers (OBC) are useful for producing soft compounds such as soft touch articles. The block architecture of the OBC results in good tensile strength, compression set and temperature resistance. To make soft touch compositions (*i.e.*, compositions with a low durometer value and/or a low Shore A hardness value), OBC is mixed with an oil. As the amount of oil is increased, so too increases the likelihood of oil-bleed. Oil-bleed is problematic because it produces undesirable haptics in articles fabricated from these compounds.

[0002] A need therefore exists for a soft, oil-extended OBC composition with reduced oil-bleed.

SUMMARY

[0003] The present disclosure is directed to oil-extended OBC compositions with reduced, or no, oil-bleed. The present compositions contain microcrystalline wax that is an oil-bleed inhibitor. The presence of the microcrystalline wax maintains the softness of the composition, and simultaneously reduces, or eliminates, oil-bleed.

[0004] The disclosure provides a composition. There is provided~~In an embodiment,~~ an oil-extended olefin block copolymer composition is provided and includes an olefin block copolymer, an oil, and a microcrystalline wax.

[0004a] In a first aspect, there is provided an oil-extended olefin block copolymer composition comprising: an olefin block copolymer, wherein the olefin block copolymer consists of an ethylene/α-olefin multi-block copolymer; at least 25 wt% of an oil, based on the total weight of the composition; and a microcrystalline wax.

[0005] The disclosure provides another composition. There is provided~~In an embodiment,~~ an oil-extended olefin block copolymer composition is provided and includes an olefin block copolymer, from 100 phr to 250 phr of an oil, and from 30 phr to 100 phr of a microcrystalline wax. The composition has a Shore A hardness from 5 to about 50 and a normalized oil-bleed index of less than or equal to 30 after three weeks at 23°C.

[0005a] In a second aspect, there is provided an oil-extended olefin block copolymer composition comprising: an olefin block copolymer, wherein the olefin block copolymer consists of an ethylene/α-olefin multi-block copolymer; from 100 phr to 250 phr of an oil; from 30 phr to 100 phr of a microcrystalline wax; and the composition has a Shore A hardness from 5 to 50 and a normalized oil-bleed index of less than or equal to 30 after three weeks at 23°C.

[0006] The disclosure provides another composition. There is provided~~In an embodiment,~~ an oil-extended olefin block copolymer composition is provided and includes an olefin block copolymer, and a petrolatum.

[0006a] In a third aspect, there is provided an oil-extended olefin block copolymer composition comprising: an olefin block copolymer, wherein the olefin block copolymer consists of an ethylene/α-olefin multi-block copolymer; and a petrolatum.

[0007] An advantage of the present disclosure is the provision of a soft oil-extended OBC composition with reduced, or no, oil-bleed.