[5] US Patent No. 7,622,529 relates to olefin interpolymers as compatiblizers, which are prepared by polymerizing one or more monomers or mixtures of monomers, such as ethylene and one or more comonomers, to form an interpolymer product having unique physical properties. The olefin interpolymers contain two or more differing regions or segments (blocks), resulting in unique processing and physical properties.

[6] WO/2011/041696 relates to block composites and their use as impact modifiers; WO/2011/041698 relates to block composites in soft compounds; and WO/2011/041699 relates to block composites in thermoplastic vulcanisates.

SUMMARY

[7] The disclosure provides a composition comprising a functionalized olefin-based polymer formed from at least (A) and (B):

(A) a block composite comprising:
  i) a block copolymer comprising a crystalline propylene-based block and an ethylene/α-olefin block;
  ii) a crystalline propylene-based polymer; and,
  iii) an ethylene/α-olefin polymer; and
(B) at least one functionalization agent.

The disclosure also provides a composition comprising a functionalized olefin-based polymer formed from at least (A) and (B):

(A) a crystalline block composite comprising:
  i) a block copolymer comprising a crystalline propylene-based block and an crystalline ethylene-based block;
  ii) a crystalline propylene-based polymer; and,
  iii) an crystalline ethylene-based polymer; and
(B) at least one functionalization agent.

[7a] In one aspect, there is provided a composition comprising a functionalized olefin-based polymer formed from at least (A) and (B):

(A) a block composite comprising:
  a) a block copolymer comprising a crystalline propylene-based block and an ethylene/α-olefin block;
  ii) a crystalline propylene-based polymer comprising a propylene content of greater than 90 mol%; and,
  iii) an ethylene/α-olefin polymer comprising an ethylene content of greater than 10 mol% and less than 90 mol%, the crystalline propylene-based block of the block copolymer having the same composition as the

iv) crystalline propylene-based polymer of the block composite, and the ethylene/α-olefin block of the block copolymer having the same composition as the ethylene/ α-olefin polymer of the block composite; and

(B) at least one functionalization agent selected from the group consisting of silane, maleic anhydride and amine, wherein the weight percent of polypropylene from HTLC separation before functionalization and the weight percent of polypropylene from HTLC separation after functionalization comprises a difference not exceeding 20 weight percent, and wherein the block composite is polymerized in the presence of a chain shuttling agent.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows the DSC profile for CBC2.

Figure 2 shows the TREF analysis of CBC2

Figure 3 shows HTLC analysis of CBC2.

Figure 4 shows the IR spectrum for MAH-g-CBC2-4.

Figure 5 shows the DSC profile for MAH-g-CBC2-4.

Figure 6 shows HTLC analysis of MAH-g-CBC2-4.

Figure 7 shows TEM for CBC5, MAH-g-CBC2 (Ex. 5) and MAH-g-(EP1/iPP1 50/50 Blend) (Ex. C).

CLAIMS:

1. A composition comprising a functionalized olefin-based polymer formed from at least (A) and (B):

(A) a block composite comprising:

i) a block copolymer comprising a crystalline propylene-based block and an ethylene/α-olefin block;

ii) a crystalline propylene-based polymer comprising a propylene content of greater than 90 mol%; and,

iii) an ethylene/α-olefin polymer comprising an ethylene content of greater than 10 mol% and less than 90 mol%, the crystalline propylene-based block of the block copolymer having the same composition as the crystalline propylene-based polymer of the block composite, and the ethylene/α-olefin block of the block copolymer having the same composition as the ethylene/ α-olefin polymer of the block composite; and

(B) at least one functionalization agent selected from the group consisting of silane, maleic anhydride and amine, wherein the weight percent of polypropylene from HTLC separation before functionalization and the weight percent of polypropylene from HTLC separation after functionalization comprises a difference not exceeding 20 weight percent, and wherein the block composite is polymerized in the presence of a chain shuttling agent.