

Claims

1. A polymer composition comprising the following components:
 - A) 5 to 35 wt.-% based on the overall weight of the polymer composition of a recycled coated polyolefin fabric substrate; wherein said fabric substrate is coated with a polyolefin coating composition comprising the following components:
 - a1) an ethylene based plastomer with a density determined according to ISO 1183-1 in the range of 0.857 to 0.915 g/cm³ and a MFR₂ (190°C, 2.16 kg) determined according to ISO 1133 in the range of 0.5 to 30 g/10 min; and
 - a2) a propylene based plastomer with a density determined according to ISO 1183-1 in the range of 0.850 to 0.910 g/cm³ and a MFR₂ (230°C, 2.16 kg) determined according to ISO 1133 in the range of 0.01 to 30 g/10 min;
 - B) 65 to 95 wt.-% based on the overall weight of the polymer composition of a homopolypropylene or a recycled polymer blend comprising b1) polypropylene and b2) polyethylene, wherein the weight ratio of b1) to b2) is from 3:7 to 12:1.
2. The polymer composition according to claim 1 wherein the content of the coating composition in component A) is in the range of 5 to 90 wt.-%, preferably in the range of 50 to 85 wt.-%, more preferably in the range of 55 to 75 wt.-% and even more preferably in the range of 60 to 70 wt.-% based on the overall weight of component A).
3. The polymer composition according to claim 1 or 2 characterized in that,
the ethylene based plastomer a1) is a copolymer of ethylene and at least one C3 to C10 alpha-olefin and preferably is a copolymer of ethylene and 1-octene; and/or
the propylene based plastomer a2) is a copolymer of propylene and ethylene or a C4 to C10 alpha-olefin.
4. The polymer composition according to claim 1 to 3 characterized in that,
the ethylene based plastomer a1) has a density determined according to ISO 1183-1 in the range of 0.860 to 0.915 g/cm³, preferably 865 to 0.905 g/cm³ and/or a MFR₂ (190°C, 2.16 kg) determined according to ISO 1133 in the range of 2.5 to 12 g/10 min; and/or

the propylene based plastomer a2) has a density determined according to ISO 1183-1 in the range of 0.855 to 0.900 g/cm³ and/or a MFR₂ (230°C, 2.16 kg) determined according to ISO 1133 in the range of 3.0 to 22 g/10 min.

- 5 5. The polymer composition according to claim 1 to 4 characterized in that, component A) comprises a flame retardant a3) such as an ammonium polyphosphate and preferably consisting of an ammonium polyphosphate.
6. The polymer composition according to claim 1 to 5, characterized in that,
- 10 the content of component a1) in the coating composition of component A) is in the range of 40 to 65 wt.-%, preferably in the range of 45 to 62 wt.-% and preferably in the range of 52 to 60 wt.-% based on the overall weight of component A); and/or
- the content of component a2) in the coating composition of component A) is in the range of 20 to 40 wt.-%, preferably in the range of 29 to 39 wt.-% and preferably in
- 15 the range of 30 to 34 wt.-% based on the overall weight of component A); and/or
- the content of component a3) in the coating composition of component A) is in the range of 5 to 20 wt.-%, preferably in the range of 9 to 16 wt.-% and preferably in the range of 10 to 14 wt.-% based on the overall weight of component A).
- 20 7. The polymer composition according to claim 1 to 6 characterized in that,
- the content of component A) in the polymer composition is in the range of 9 to 31 wt.-%, preferably in the range of 10 to 20 wt.-% and more preferably in the range of 19 to 31 wt.-% based on the overall weight of the polymer composition; and/or
- the content of component B) in the polymer composition is in the range of 69 to
- 25 91 wt.-%, preferably in the range of 80 to 90 wt.-% and more preferably in the range of 69 to 81 wt.-% based on the overall weight of the polymer composition.
8. The polymer composition according to claim 1 to 7 characterized in that the polymer composition comprises at least one additive, preferably selected from the group consisting of slip agents, anti-acids, antimicrobial agents, UV-stabilisers, pigments,
- 30 antioxidants, antiblock agents, additive carriers, nucleating agents, lubricants, processing aids, silicon-based anti-scratch agents and mixtures thereof, whereby these additives preferably are present in 0.1 to 10 wt.-% and more preferably in 0.5 to 3 wt.-% based on the overall weight of the polymer composition.

9. The polymer composition according to claim 1 to 8 characterized in that,
component B) is a homopolypropylene having
a MFR₂ (230°C, 2.16 kg) determined according to ISO 1133 in the range of 10 to 30
g/10 min, preferably 15 to 25 g/10 min and more preferably in the range of 18 to 22
g/10 min; and/or
a melting point determined according to IO 11357-3 in the range of 158 to 163°C and
preferably in the range of 160 to 162°C.
10. The polymer composition according to claim 1 to 9 characterized in that,
component B) is a recycled polymer blend comprising b1) polypropylene and b2)
polyethylene, wherein the weight ratio of b1) to b2) is from 3:7 to 12:1;
and wherein component (B) comprises 80.0 to 99.9 wt.-%, preferably 90.0 to 99.0 wt.-%
and more preferably 94.0 to 98.0 wt.-% based on the overall weight of component
B) of polypropylene b1) and polyethylene b2).
11. The polymer composition according to claim 1 to 10 characterized in that component
B) comprises less than 5 wt.-%, preferably less than 3 wt.-% and more preferably from
0.01 to 2 wt.-% based on the overall weight of component B) of thermoplastic polymers
different from b1) and b2), preferably less than 4.0 wt.-% PA 6, preferably 0 to 3.5 wt.-%
PA 6 and less than 5 wt.-% polystyrene, more preferably component B) comprises
0.5 to 3 wt.-% polystyrene.
12. The polymer composition according to claim 1 to 11, characterized in that component
B) is recovered from waste plastic material derived from post-consumer and/or post-
industrial waste.
13. The polymer composition according to claim 1 to 12 characterized in that the MFR₂
(230°C, 2.16 kg) determined according to ISO 1133 of component B) is in the range of
16 to 50 g/10 min and preferably in the range of 18 to 22 g/10 min.
14. The polymer composition according to claim 1 to 13 wherein the fabric substrate
comprises polypropylene.
15. The polymer composition according to claim 1 to 14 wherein the content of the fabric
substrate is in the range of 8 to 50 wt.-%, preferably in the range of 10 to 45 wt.-%,

more preferably in the range of 20 to 35 wt.-% based on the overall weight of component A).

16. A process for the preparation of a polymer composition, e.g. as claimed in any one of claim 1 to 15, comprising obtaining a recycled coated polyolefin fabric substrate and shredding the same to form shreds;

combining, optionally in an extruder,

- A) 5 to 35 wt.-% based on the overall weight of the polymer composition of said shreds of recycled coated polyolefin fabric substrate; wherein said fabric substrate is coated with a polyolefin coating composition comprising the following components:

a1) an ethylene based plastomer with a density determined according to ISO 1183-1 in the range of 0.857 to 0.915 g/cm³ and a MFR₂ (190°C, 2.16 kg) determined according to ISO 1133 in the range of 0.5 to 30 g/10 min; and

a2) a propylene based plastomer with a density determined according to ISO 1183-1 in the range of 0.850 to 0.910 g/cm³ and a MFR₂ (230°C, 2.16 kg) determined according to ISO 1133 in the range of 0.01 to 30 g/10 min; and

- B) 65 to 95 wt.-% based on the overall weight of the polymer composition of a homopolypropylene or a recycled polymer blend comprising b1) polypropylene and b2) polyethylene, wherein the weight ratio of b1) to b2) is from 3:7 to 12:1.

17. Use of component A) being a recycled coated polyolefin fabric substrate; wherein said fabric substrate is coated with a polyolefin coating composition comprising the following components:

a1) an ethylene based plastomer with a density with a density determined according to ISO 1183-1 in the range of 0.850 to 0.915 g/cm³ and a MFR₂ (190°C, 2.16 kg) determined according to ISO 1133 in the range 0.5 to 30 g/10 min; and

a2) a propylene based plastomer with a density determined according to ISO 1183-1 in the range of 0.860 to 0.910 g/cm³ and a MFR₂ (230°C, 2.16 kg) determined according to ISO 1133 in the range of 0.01 to 30 g/10 min and preferably in the range of 0.5 to 30 g/10 min;

for increasing the Charpy Notched Impact Strength measured according to ISO 179-1eA at 23°C;

of component B) being a homopolypropylene or a recycled polymer blend comprising b1) polypropylene and b2) polyethylene, wherein the weight ratio of b1) to b2) is from 3:7 to 12:1;

5 whereby component B) is present in amount of 65 to 90 wt.-% and preferably 70 to 90 wt.-% based on the overall weight of components A) and B).

18. Use as claimed in claim 17 wherein component A) is present in amount of 5 to 35 wt.-% based on the overall weight of components A) and B).

10 19. Use according to claim 17 or 18, characterized in that,

component B) is homopolypropylene and the Charpy Notched Impact Strength of component B) measured according to ISO 179-1eA at 23°C is increased by at least 25 % and preferably by 25 to 150 %; or

15 component B) is a recycled polymer blend comprising b1) polypropylene and b2) polyethylene, wherein the weight ratio of b1) to b2) is from 3:7 to 12:1 and the Charpy Notched Impact Strength of component B) measured according to ISO 179-1eA at 23°C is increased, preferably by at least 10 % and more preferably by 10 to 100 %.

20. Use according to claim 17 to 19, characterized in that,

20 component B) is a recycled polymer blend comprising b1) polypropylene and b2) polyethylene, wherein the weight ratio of b1) to b2) is from 3:7 to 12:1 and the Tensile Strain at Break measured according to ISO 527-2 is increased, preferably by at least 20 % and more preferably by 20 to 250 %.

25 21. Use according to any one of claims 17 to 20, characterized in that,

component A) comprises a flame retardant a3) comprising an ammonium polyphosphate and preferably consisting of an ammonium polyphosphate.

22. Use according to any one of claims 17 to 21, characterized in that,

30 component A) is used in shredded form, as pellets, as flakes, as powder or as granules.

23. An article comprising the polymer composition as defined in any one of claims 1 to 15.
24. Article according to claim 23 selected from the group consisting of consumer goods or houseware, preferably caps, closures and packaging containers, boxes, cutlery tray, garbage bin.
- 5