[015] The document WO 2010/099160 discloses composite polymer modifiers. The document discloses a composite polymer modifier consisting of 99wt% to 1wt% of inorganic filler and from 1wt% to 99wt% of a polymeric processing aid and 0wt% to 80% of an impact modifier. The impact modifier is optional, however used in some examples. This document discloses no specific advantages about certain impact modifier compositions.

[016] The document WO2007/093565 discloses a hybrid impact modifier comprising an impact modifier and a mineral filler. The document tries to solve the segregation of different components throughout of a powder composition and discloses and claims especially 3 to 20wt% of mineral filler.

[017] None of the prior art documents discloses such a specific composition as the present disclosure.

[Brief description]

[017a] In an aspect, there is provided a polymer composition P1 comprising:

a) from 29wt% to 60wt% of an inorganic mineral compound (F),

b) from 40wt% 71wt% of a polymeric impact modifier (IM1) which is a polymer particle having a multilayer structure comprising at least one layer (IM1L1) comprising a polymer (L1) having a glass transition temperature below 0 °C and at least another layer (IM1L2) comprising a polymer (L2) having a glass transition temperature over 45 °C;

characterized that the two components of a) and b) add up to 100wt% and that the weight ratio of layer (IM1L1)/layer (IM1L2) in the multistage polymer is at least 85/15.

[017b] In another aspect, there is provided a process for preparing a polymeric composition P1 comprising

a) from 29wt% to 60wt% of an inorganic compound (F)

b) from 40wt% 71wt% of a polymeric impact modifier (IM1) which is a polymer particle having a multilayer structure comprising at least one layer (IM1L1) comprising a polymer

(L1) having a glass transition temperature below 0 °C and at least another layer (Im1L2) comprising a polymer (L2) having a glass transition temperature over 45 °C;

characterized that the two components a) and b) add up to 100wt% and that the weight ratio of layer (IM1L1)/layer (IM1L2) in the multistage polymer is at least 85/15, said process comprises the step of

blending the components of a) and b), while the component of b) and at least 83.33wt% of compound a) are in form of a dispersion in aqueous phase during the blending step.

[017c] In another aspect, there is provided a process for preparing a polymeric composition P2 comprising polymer composition P1 as defined above or obtained by a process as defined above,

the said polymeric composition P2 comprises also

d) a thermoplastic polymer TP1

said process comprises the step of

blending the compositions P1 and the thermoplastic polymer TP1.

[017d] In another aspect, there is provided Use of a composition as defined above or obtained by a process as defined above, for increasing the corner weld strength of a thermoplastic polymer TP1.

[017e] In another aspect, there is provided the use of a composition as defined above or obtained by a process as defined above, for processing a polymeric composition P2 that comprises said polymeric composition P1 and a thermoplastic polymer TP1.

[017f] In another aspect, there is provided an article comprising polymer composition P2 obtained by a process as defined above, characterized that the article is a profile, a pipe, a siding, a foam, a film, a sheet, a flooring film or sheet.

[018] Surprisingly it has been found that a polymer composition P1 comprising

a) from 29wt% to 60wt% of an inorganic compound (F),

b) from 40wt% 71wt% of a polymeric impact modifier (IM1);

characterized that the two components of a) and b) add up to 100wt%, increases the impact resistance of thermoplastic polymers while still having an acceptable fusion time and yields to a better heat dissipation during the cooling of high speed processing.

[019] Surprisingly it has also been found that a process for preparing a polymer composition P1 comprising

a) from 29wt% to 60wt% of an inorganic compound (F),

b) from 40wt% 71wt% a polymeric impact modifier (IM1);

characterized that the two components of a) and b add up to 100wt%, said process comprises the step of

Claims

1. A polymer composition P1 comprising:
   a) from 29wt% to 60wt% of an inorganic mineral compound (F),
   b) from 40wt% to 71wt% of a polymeric impact modifier (IM1) which is a polymer particle having a multilayer structure comprising at least one layer (IM1L1) comprising a polymer (L1) having a glass transition temperature below 0 °C and at least another layer (IM1L2) comprising a polymer (L2) having a glass transition temperature over 45 °C;
   characterized that the two components of a) and b) add up to 100wt% and that the weight ratio of layer (IM1L1)/layer (IM1L2) in the multistage polymer is at least 85/15.

2. Composition according to claim 1, wherein the inorganic compound (F) consists of a mineral filler (F1) and a flow aid (F2), wherein the weight ratio (F1)/(F2) is at least 5/1.

3. Composition according to claim 1 or 2 comprising
   a) between 29wt% and 60wt% of an inorganic compound (F),
   b) between 40wt% and 71wt% a polymeric impact modifier (IM1).

4. Composition according to claim 1 or 2 comprising
   a) between 31wt% and 59wt% of an inorganic compound (F),
   b) between 41wt% and 69wt% a polymeric impact modifier (IM1).

5. Composition according to claim 1 or 2 comprising
   a) between 33wt% and 58wt% of an inorganic compound (F),
   b) between 42wt% and 67wt% a polymeric impact modifier (IM1).

6. Composition according to claim 1 or 2 comprising
   a) between 40wt% and 55wt% of an inorganic compound (F),
   b) between 45wt% and 60wt% a polymeric impact modifier (IM1).

7. Composition according to claim 1 or 2 comprising
   a) between 42wt% and 47wt% of an inorganic compound (F),

b) between 53wt% and 58wt% a polymeric impact modifier (IM1).

8. Composition according to any of claims 1 to 7, wherein the composition is in form of a powder having volume median particle size D50 between 1µm and 500µm.

9. Composition according to claim 8, wherein each powder particle comprises the compounds of a) and b).

10. Composition according to any of claims 1 to 9, wherein a small sample of 0.1wt% taken from a larger quantity of the polymeric composition P1 has a variation of less than 30% relative to the global composition of P1 concerning the weight ratio of the two respective components of a) and b).

11. Composition according to any of claims 1 to 10, wherein the polymer (L1) has a glass transition temperature between −100 °C and 0°C and the polymer (L2) has a glass transition temperature between 60°C and 150°C.

12. Composition according to any of claims 1 to 11, wherein the weight ratio of layer (IM1L1)/layer (IM1L2) in the multistage polymer is preferably in a range by weight between 85/15 and 97/3 and preferably 89/11 to 96/4.

13. Composition according to any of claims 1 to 11, wherein the weight ratio of layer (IM1L1)/layer (IM1L2) in the multistage polymer is at least 86/14, more preferably 87/13, even more preferably 88/12 and most preferably 89/11.

14. Composition according to any of claims 1 to 11, wherein the weight ratio of layer (IM1L1)/layer (IM1L2) in the multistage polymer is preferably in a range by weight between 86/14 and 97/3, more preferably between 87/13 and 97/2, even more preferably between 88/11 and 96/4.

15. Composition according to any of claims 1 to 14, wherein the polymer L1 presents more than 85wt% of the polymeric impact modifier (IM1).

16. Composition according to any of claims 1 to 15, wherein the polymer L1 presents more than 86wt% of the polymeric impact modifier (IM1)

17. Composition according to any of claims 1 to 16, wherein the the polymer (L1) having a glass transition temperature below 0°C is a (meth) acrylic polymer comprising at least 50wt% of monomers from alkyl acrylates.

18. Composition according to any of claims 1 to 17 wherein at least a part of the inorganic mineral filler (F) is a mineral filler chosen from calcium carbonate, calcinated clay, silica (fumed or precipitated), clay, Montmorillonite (nano-clay), zeolite or perlite, Titanium dioxyde.

19. Composition according to any of claims 1 to 18 wherein the inorganic mineral filler (F) or the mixture of it is chosen from calcium carbonate.

20. A process for preparing a polymeric composition P1 comprising

a) from 29wt% to 60wt% of an inorganic compound (F)

b) from 40wt% to 71wt% of a polymeric impact modifier (IM1) which is a polymer particle having a multilayer structure comprising at least one layer (IM1L1) comprising a polymer (L1) having a glass transition temperature below 0 °C and at least another layer (Im1L2) comprising a polymer (L2) having a glass transition temperature over 45 °C;

characterized that the two components a) and b) add up to 100wt% and that the weight ratio of layer (IM1L1)/layer (IM1L2) in the multistage polymer is at least 85/15, said process comprises the step of

blending the components of a) and b), while the component of b) and at least 83.33wt% of compound a) are in form of a dispersion in aqueous phase during the blending step.

21. A process according to claim 20, wherein the polymeric composition P1 is comprising
a) between 31wt% and 59wt% of an inorganic compound (F),
b) between 41wt% and 69wt% a polymeric impact modifier (IM1).

22. A process according to claim 20 or 21, wherein said inorganic compound (F) consists of a mineral filler (F1) and a flow aid (F2), wherein the weight ratio (F1)/(F2) is at least 5/1.

23. The process according to any of claims 20 to 22, characterized that said process comprises the step of
i) blending the two components of a) and b), while the two components are in form of a dispersion in aqueous phase during the blending step,
ii) drying the blend obtained in step i).

24. A process for preparing a polymeric composition P2 comprising polymer composition P1 according to any of claims 1 to 19 or obtained by a process according to any of claims 20 to 23,
the said polymeric composition P2 comprises also
d) a thermoplastic polymer TP1
said process comprises the step of
blending the compositions P1 and the thermoplastic polymer TP1.

25. Use of a composition according to any of claims 1 to 19 or obtained by a process according to any of claims 20 to 23, for increasing the corner weld strength of a thermoplastic polymer TP1.

26. Use of a composition according to any of claims for 1 to 19 or obtained by a process according to any of claims 20 to 23, for

processing a polymeric composition P2 that comprises said polymeric composition P1 and a thermoplastic polymer TP1.

27. Article comprising polymer composition P2 obtained by a process according to claim 24, characterized that the article is a profile, a pipe, a siding, a foam, a film, a sheet, a flooring film or sheet.