foamable halogenated polymers and formulations, notably halogenated polymers as polyvinylchloride (PVC).

[009] The processing aids are useful for increasing the thermoplastic resin melt strength for the thermoplastic transformation as blow molding, injection molding, foaming and thermoforming.

[010] The objective of the ~~present invention~~embodiments disclosed herein is to propose a polymer powder composition which is non dusty.

[011] An objective of the embodiments disclosed herein~~present invention~~ is also to have a polymer powder composition with a low fine content.

[012] Another objective of the embodiments disclosed herein~~present invention~~ is to avoid a too fine powder and to obtain a polymer powder with coarser particles.

[013] An additional objective of the embodiments disclosed herein~~present invention~~ is the adaption of the polymer powder composition of the polymer powder according to the monomer composition of the respective polymers, especially the monomer composition of the polymers of respective stages of a polymer powder obtained by a multistage process.

[014] Still another objective of the embodiments disclosed herein~~present invention~~ is a method for manufacturing a polymer powder composition which is non dusty and is having a low fine content.

[015] Still an additional objective is having a process for preparing polymer powder composition of a multistage polymer which is non dusty, with a low fine content, and estimating the polymer composition and ratio of the respective stages according to the composition and the corresponding Tg of the polymer of the last stage.

[016] Still a further objective is to obtain a halogenated polymer composition that is easily processable with the multistage polymer.

[024] Non of the prior art documents discloses a multistage polymer comprising a stage comprising a polymer with at least 50wt% ethyl acrylate units and a molecular weight less then 1 000 000g/mol.

[~~Brief description of the invention~~Summary]

[025] Surprisingly it has been found that a polymer composition in form of polymeric particles comprising

at least one stage forming a layer (B) comprising a polymer (B1) having a glass transition temperature of at least 60°C and

at least one stage forming a layer (A) comprising a polymer (A1) having a glass transition temperature of less then 60°C and polymer (A1) comprises at least 50wt% of polymeric units coming from ethyl acrylate,

obtained by a multistage process characterized that the weight ratio r of the layer (A) in the composition comprising the two layers is at least 2wt%, gives a non-dusty polymer powder with a low fine content and can be used as processing aid for halogenated polymers.

[025a] In an aspect, there is provided a polymer composition in form of polymeric particles comprising

at least one stage forming a layer (B) comprising a polymer (B1) having a glass transition temperature of at least 60°C and

at least one stage forming a layer (A) comprising a polymer (A1) having a glass transition temperature of less then 60°C and polymer (A1) comprises at least 50wt% of polymeric units coming from ethyl acrylate,

obtained by a multistage process characterized that the weight ratio r of the layer (A) in the composition comprising the two layers is at least 2wt%.

[026] Surprisingly it has also been found that a polymer composition in form of polymeric particles comprising

at least one stage forming an inner layer (B) comprising a polymer (B1) having a glass transition temperature of at least 60°C and

at least one stage forming an outer layer (A) comprising a polymer (A1) having a glass transition temperature of less then 60°C and polymer (A1) comprises at least 50wt% of polymeric units coming from ethyl acrylate,

obtained by a multistage process characterized that the weight ratio r of the outer layer (A) in the composition comprising the two layers is at least 2wt%, yields to a non-dusty polymer powder with a low fine content after agglomeration of the polymer particles for forming the polymer powder and can be used as processing aid for halogenated polymers.

[027] Surprisingly it has also been found that a method for manufacturing a polymer composition comprising the steps of

a) polymerizing by emulsion polymerization of a monomer or monomer mixture (B_m) to obtain layer (B) comprising a polymer (B1) having a glass transition temperature of at least 60°C

b) polymerizing by emulsion polymerization of a monomer or monomer mixture (A_m) to obtain one layer (A) comprising polymer (A1) having a glass transition temperature of less then 60°C in presence of the polymer obtained in step a)

wherein the weight ratio r of the layer (A) in the composition comprising the two layers is at least 2wt% and the monomer mixture (Am) comprises at least 50wt% of ethyl acrylate, yields to a non-dusty polymer powder with a low fine content after agglomeration of the polymer particles for forming the polymer powder and can be used as processing aid for halogenated polymers.

[027a] In another aspect, there is provided a method for manufacturing the polymer composition comprising the steps of

a) polymerizing by emulsion polymerization of a monomer or monomer mixture (B_m) to obtain layer (B) comprising a polymer (B1) having a glass transition temperature of at least 60°C

b) polymerizing by emulsion polymerization of a monomer or monomer mixture (A_m) to obtain one layer (A) comprising polymer (A1) having a glass transition temperature of less then 60°C

wherein the weight ratio r of the obtained layer (A) in the composition comprising the two layers is at least 2wt% and the monomer mixture (Am) comprises at least 50wt% of ethyl acrylate.

[028] Surprisingly it has also been found that a polymer composition comprising

a) a halogenated polymer and

b) a polymer obtained by a multistage process with

at least one stage forming an inner layer (B) comprising a polymer (B1) having a glass transition temperature of at least 60°C and

at least one stage forming an outer layer (A) comprising a polymer (A1) having a glass transition temperature of less then 60°C and polymer (A1) comprises at least 50wt% of polymeric units coming from ethyl acrylate,

characterized that the weight ratio r of the outer layer (A) in the polymer obtained by a multistage process comprising the two layers is at least 2wt%, can be processed easily.

[028a] In another aspect, there is provided a halogenated containing polymer composition comprising

a) a halogenated polymer and

b) a polymer obtained by a multistage process with

at least one stage forming an inner layer (B) comprising a polymer (B1) having a glass transition temperature of at least 60°C and

at least one stage forming an outer layer (A) comprising a polymer (A1) having a glass transition temperature of less then 60°C and polymer (A1) comprises at least 50wt% of polymeric units coming from ethyl acrylate,

characterized that the weight ratio r of the outer layer (A) in the polymer obtained by a multistage process comprising the two layers is at least 2wt%.

[028b] In another aspect, there is provided the use of the polymer composition as defined above or obtained by the method as defined above as processing aid for a halogenated containing thermoplastic polymer composition.

[Detailed description of the invention]

[029] According to a first aspect, the present invention relates to a polymer composition in form of polymeric particles comprising