

[00107] The amount of antiblock composition present in the first fluid is sufficient to substantially coat the tacky composition particles as they contact the first fluid but yet not sufficient to interfere with processing. When water is the first fluid, the amount of antiblock composition is typically less than about 5% by weight of the water. Preferably, the antiblock composition is present in less than about 2wt.%, or less than about 1.5 wt.%, or less than about 1.0 wt.%, or less than about 0.9 wt.%, or less than about 0.75 wt.%, based on the weight of water.

[00108] Optionally, once separated from the first fluid, the tacky composition particles may be contacted with additional antiblock composition. The antiblock composition utilized in the first fluid may be the same or different from the additional antiblock composition.

[00109] Figure 1 is a schematic diagram of an exemplary apparatus for preparing agglomeration resistant particles. The apparatus 1 shows a pelletizer liquid loop 2, i.e., water loop 2, operated with an additional warm liquid loop 3, i.e., warm water loop 3, to elevate pellet temperature while contacting the pellets with antiblock compositions. Water loop 2 is maintained at a temperature below the temperature of warm water loop 3. An exemplary temperature for water loop 2 is about 5 to about 10°C.

[00110] Referring to Figure 1, a tacky composition is prepared and transported to an extruder 4, which maintains favorable operating temperature. The extruder 4 is connected to an underwater pelletizing apparatus 5 that pelletizes the tacky composition and contacts the tacky composition with a first fluid, e.g., water. From the underwater pelletizing apparatus 5, the pellets travel to a drying apparatus 6, e.g., spin dryer, which removes excess water. The excess water removed from the pellets is optionally looped back to the underwater pelletizing apparatus 5 via pelletizer water loop 2 and antiblock reservoir 7.

[00111] Pellets are transported from spin dryer 6 to one or more stirred tanks 8 and 9, which contain additional additives, including optionally the same and/or a different antiblock composition. Although two stirred tanks are shown in Figure 61, one stirred tank may be utilized as an alternative. If multiple stirred tanks are utilized, the apparatus can be operated in a semi-batch state. Pellets are processed in stirred tank 8, thereby removing additive compositions to coat pellets, while a second stirred tank 9 is filled with water and additive compositions. The flow of pellets is then alternated to the newly filled second stirred tank 9 thereby permitting the first stirred tank 8 to be refilled with water and additive compositions.

[00112] When contacted with warm water from the warm water loop 3 in the stirred tanks 8 and 9, the pellets simultaneously warm up, harden, and become coated with additives, e.g.,

CLAIMS

What Is Claimed Is:

1. A method for preparing agglomeration resistant particles comprising the steps of:

a. providing particles of a tacky composition having an unconfined yield strength of at least 15 lbs/ft² (73.2 kg/m²) at or above 25°C as measured by ASTM D6773 wherein the tacky composition comprises a polyolefin composition comprising at least 75 weight percent propylene, based on the weight of the polyolefin composition,

b. ~~increasing the tackiness of the tacky composition particles by~~ contacting the tacky composition particles with a first fluid at a temperature of at least 25°C, and

c. contacting the tacky composition particles with an antiblock composition while the tacky composition particles are in contact with the first fluid wherein the first fluid is at a temperature of at least 25°C, and wherein the temperature of the first fluid is the glass transition temperature or above of the tacky composition, wherein the tacky composition particles are at least partially coated with the antiblock composition.

~~2. The method for preparing agglomeration resistant particles of claim 1, wherein the tacky composition comprises a polyolefin composition comprising at least 75 weight percent propylene, based on the weight of the polyolefin composition.~~

~~3.2.~~ The method for preparing agglomeration resistant particles of claim 1 ~~and 2~~, wherein the polyolefin composition has a branching index (g') of 0.95 or less measured at the Mz of the polyolefin composition.

~~4.3.~~ The method for preparing agglomeration resistant particles of any one of claims 1 to ~~3.2~~, wherein the polyolefin composition comprises propylene and a comonomer selected from the group consisting of butene, hexene, octene, or combinations thereof.

~~5.4.~~ The method for preparing agglomeration resistant particles of any one of claims ~~2~~ 1 to ~~4~~ 3, wherein the polyolefin composition has:

- a) an isotactic run length of 1 to 30,
- b) a percent of r dyad of greater than 20%, and
- c) a heat of fusion of between 1 and 70 J/g.

~~6.5.~~ The method for preparing agglomeration resistant particles of any of the preceding claims, wherein the first fluid is an aqueous based fluid.

~~7.6.~~ The method for preparing agglomeration resistant particles of any of the preceding claims, wherein the first fluid is an aqueous based fluid at a temperature from 25°C to 75°C.

~~8.7.~~ The method for preparing agglomeration resistant particles of any of the preceding claims, wherein the tacky composition particles are pellets.

~~9.8.~~ The method for preparing agglomeration resistant particles of any of the preceding claims, wherein the first fluid is free of surfactant.

~~10.9.~~ The method for preparing agglomeration resistant particles of any of the preceding claims, wherein the tacky composition particles contact the first fluid in an underwater pelletizer.

~~11.10.~~ The method for preparing agglomeration resistant particles of any of the preceding claims, wherein the tacky composition particles contact the first fluid in a fluidized bed.

~~12.11.~~ The method for preparing agglomeration resistant particles of any of the preceding claims, wherein the antiblock composition is a polymer, salt of an organic acid, or combinations thereof.

~~13.12.~~ The method for preparing agglomeration resistant particles of any of the preceding claims, wherein the antiblock composition is a polymer.

~~14.~~13. The method for preparing agglomeration resistant particles of any of the preceding claims, wherein the antiblock composition is a polymeric powder.

~~15.~~14. The method for preparing agglomeration resistant particles of any of the preceding claims, wherein the antiblock composition is a low density polyethylene.

~~16.~~15. The method for preparing agglomeration resistant particles of any of the preceding claims, wherein the agglomeration resistant particles are free flowing in less than 90 seconds without an applied force after being stored at 45°C for three days in a three inch vessel with 3500 grams of applied pressure as described in ASTM D1895 Method B.

~~17.~~16. The method for preparing agglomeration resistant particles of any of the preceding claims, wherein the agglomeration resistant particles have a crystallization half life of less than six minutes at 15°C.

~~18.~~17. The method for preparing agglomeration resistant particles of any of the preceding claims, wherein the agglomeration resistant particles have a crystallization half life of less than two minutes at 30°C.

~~19.~~18. The method for preparing agglomeration resistant particles of any of the preceding claims, wherein, after contacting the first fluid, the agglomeration resistant particles are coated with from 0.01 to 3.0 weight percent of the antiblock composition based on the weight of the agglomeration resistant particles.

~~20.~~18. The method for preparing agglomeration resistant particles of any of the preceding claims, wherein the agglomeration resistant particles are prepared in a continuous process such that, before being contacted with the first fluid, the tacky composition is polymerized and maintained at a temperature above 25°C without cooling below 25°C.

~~21.~~19. A method of transporting agglomeration resistant particles comprising:
a tacky composition comprising a polyolefin composition and having an

unconfined yield strength of at least about 15 lbs/ft² (73.2 kg/m²) at or above 25°C as measured by ASTM D6773, the method comprising the steps of:

- a. providing particles of the tacky composition at or above the glass transition temperature of the polyolefin composition,
- b. contacting the tacky composition particles with a first fluid at a temperature of at least 25°C, and
- c. contacting the tacky composition particles with an antiblock composition while the tacky composition particles are in contact with the first fluid wherein the first fluid is at a temperature at least 25°C and wherein the temperature of the first fluid is the glass temperature or above of the tacky composition, wherein the tacky composition particles are at least partially coated with the antiblock composition.