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DESCRIPTION CN102441974

The invention relates to a method for producing aluminum-plastic wood fiber composite profile, comprising the following steps: Step 1: Preparing materials: (1) selecting waste plastic or new plastic as main material, (2) selecting plant fiber as auxiliary material, and (3) purchasing mineral material Powder as a filler, (4) using a chemical reagent with coupling as an additive, step two, mixing: the proportion of each raw material by weight percentage, the main material accounts for 30-55%, the auxiliary material accounts for 38-55%, filler 5-30%, additives accounted for 2-6%, the above-mentioned main materials, auxiliary materials, fillers, additives are put into the mixer in proportion, processed into pellets, used as raw materials for the core, step three, through co-extrusion The production line of the equipment production line: the raw material and the protective film layer raw material which are processed in the second step are used in the hopper of the extruder, and the inner core and the protective film layer are simultaneously squeezed by the common extrusion method. The processing is performed to form the profile body. The building profiles produced by the method have high quality, long service life, durability and wide application range.

Aluminum plastic wood fiber composite profile production method

Technical field

The invention relates to an environmentally-friendly aluminum-plastic composite profile, in particular to an aluminum-plastic wood fiber composite profile produced by using waste raw materials.

Background technique

Traditional wooden doors and windows, usually mechanically processed into sections of wood, consume forest resources and are not conducive to protecting the ecological environment.

Thermoplastic door and window profiles, also known as plastic steel profiles, use a screw extruder to press thermoplastic polyvinyl chloride (PVC) into an extrusion die. After cooling, a steel lining is added inside to strengthen the bending strength, but The process is complicated and the production cost is high.

To this end, I proposed a method for making aluminum-plastic profiles using thermoplastic waste plastics in Chinese patent 200510116789.8 (manufacturing method of green environmentally-friendly hollow composite aluminum foil profiles), which provides renewable recycling for waste plastics and crop waste. The way, due to the application of materials, turning waste into treasure, killing two birds with one stone.

The method mainly comprises the steps of 1 material selection, 2 pulverization mixture, 3 extrusion ribbon mixture, 4 forging blank profile, 5 machined profile, 6 cladding layer, 7-pack metal coating, etc., but found in production, There are still some disadvantages to this method:

Described separately in the following,

1. There is no mineral filler in the raw material. It only depends on the mixing of plant fiber and plastic. Plant fiber can increase tensile strength and flexibility, but has high brittleness, low strength, poor weather resistance, large influence by sunlight and moisture, and low anti-aging performance. Easy to break.

Second, there are inappropriate raw materials in the material selection. If polystyrene (PS) and low density polyethylene (LDPE) are selected as raw materials, the strength of the product will be reduced, the service life will be shortened, and the aluminum coating layer will be easy to open. Problems such as weak bonding.

Third, the production process is cumbersome, the profile obtained by extruding in step 3 is a blank, and then needs to be covered with a roller press (step 6), and the mechanically formed hollow core profile is sent to the cladding pipe. After partially hardening through the cooling bath, vacuum flattening is applied. In order to cover with a roller press, step 4: forging the blank profile and step 5: machining, and adjusting the size of the profile, Carrying out step 6, the profile is sent to the cladding tube, the equipment is numerous, and the production process is complicated. Even in such a complicated process, since the coating material is not selected in detail, the inner core (the profile blank obtained in step 3) and the outer layer are further The metal foil layer of the layer can have a negative effect.

For the inner core, since the plastic raw material selected in step 3 is not the same as the plastic raw material selected in step 6, the thermoplastic energy is inconsistent, and the adhesive cannot be bonded, and only the hot rolling ironing coating of the rolling machine can be used. It is very good to join the inner core and the cladding material together.

For the outer layer of metal foil, the plastic material used in step 6 is not a single plastic material, nor a new material, but a recycled plastic (the plastics of various colors are waste plastics, the new plastic is White or transparent) This poses a problem. It is difficult to bond the aluminum foil to the waste plastic mixed with the pigment in the existing adhesive. Since the coating material is not a single material, the surface quality of the material is poor and rough. Microporous, not easy to bond with the adhesive, easy to open, fall off, generate bubbles, and thus affect the integrity and quality of the profile, as well as the recycling of raw materials in the recycling (due to the different thermal melting points in the raw materials), resulting in recycling Improper, not conducive to environmental protection, and the product has poor weather resistance, is greatly affected by sunlight and moisture, low anti-aging performance, and easy to break.

Summary of the invention

In order to solve the above problems, an object of the present invention is to provide a method for producing an aluminum-plastic wood fiber composite profile, which utilizes a co-extrusion method to produce a high-quality building profile, has a long service life, is durable, and is widely used. Used for door and window profiles, it can also be used in a variety of architectural fields such as decorative panels.

To achieve the above object, the present invention adopts the following technical solutions:

A method for producing an aluminum-plastic wood fiber composite profile, comprising the following steps:

Step one, preparing materials:

(1)

Use waste plastic or new plastic as the main material, the main material is any one of polypropylene, polyethylene, polyvinyl chloride and high density polyethylene.

(2)

Plant fiber is used as an auxiliary material, and the plant fiber is crushed into a 40-80 mesh powder surface by a roller compactor.

(3)

Purchase 300-800 mesh mineral powder as a filler,

(4)

Selecting a chemical reagent with coupling as an additive,

Step 2: Mixing: The ratio of each raw material by weight percentage is

The main material accounts for 30-55%.

Excipients account for 38-55%,

Filler accounts for 5-30%,

Additives account for 2-6%.

The above-mentioned main materials, auxiliary materials, fillers and additives are put into the mixing machine in proportion, heated and kneaded and processed, processed into granules, and used as raw materials for the core of the production profile;

Step 3: Produce the profile body through the co-extrusion equipment production line:

Put the raw material processed in step 2 for the core of the profile into a hopper of the extruder, and simultaneously put the same plastic material as the main material and the new plastic as the material of the protective film layer into the extruder. In a hopper, the extruder is started, and the hot-melt inner core material and the protective film layer raw material are extruded by a co-extrusion die in a co-extrusion manner, and the

inner core and the protective film layer are simultaneously extruded, and the inner core and the core are In the process of co-extrusion, the protective film layer is tightly integrated due to the uniform thermoplastic energy, and is cooled and shaped by the cooling forming device to form the profile body.

After the step 3 is completed, the step 4 and the laminating process are continued:

Applying an adhesive to the aluminum foil or wood grain film, placing the aluminum foil or wood grain film on the laminating machine station, and placing the profile body produced in step 3 on the slide of the inlet end of the laminating machine, driven by the conveyor belt The profile body enters the laminating machine and is melted by a laminating machine. The aluminum foil or the wood grain film is bonded to the profile body to form a product having a decorative layer.

The plant fiber is one or a combination of one or more of bark, bamboo skin, sawdust, straw, flax, ramie, and stem.

The mineral powder is one or both of lime powder, asbestos powder, mica powder, chalk powder, talc powder, calcium carbonate or glass fiber powder.

Compared with the prior art, the innovation of the invention lies in:

First, the mineral filler is added to the raw material. While relying on the mixing of plant fiber and plastic to increase the tensile strength and flexibility, the mineral filler is used to increase the strength and hardness of the profile, and further improve the flexibility, so that the profile is not easily broken.

Second, the selection of ingredients is more scientific and reasonable, more in line with the principle of polymer chemical reaction, for the choice of plastic types of the inner core, only a single type of plastic raw materials, not a variety of plastic raw materials, the purpose is that the first melting point is single, It is convenient to recycle and recycle the raw materials in use, which is convenient for recycling and environmentally friendly. Secondly, the thermoplasticity can be consistent. It is easy to attach a protective protective film layer to the inner core by means of co-extrusion. The protective film layer and the inner core With the same thermoplasticity, the combination is firm and does not require hot press ironing of the rolling press for lamination bonding, the protective film layer forming the inner core in a co-extruded manner is significantly better than forming the protective film layer in a laminated bond.

The protective film layer forming the inner core by co-extrusion has better performances of rainproof, moisture proof, soundproofing and wind pressure resistance, and has enhanced airtightness and good weather resistance.

Since the protective film layer is made of a single type of plastic and is a new material, the material is single and contains no impurities, which also brings benefits to the outer layer coating process (decorative layer process), and is more advantageous for selecting appropriate bonding. The agent bonds the decorative layer, it is not easy to open the glue, and no bubble falling off occurs.

At the same time, it reduces the complexity of the process, saves energy, protects the environment, reduces production costs, and is conducive to popularization.

The body of the traditional aluminum-plastic composite profile is composed only of the inner core, and the inner core is made of plant fiber, additive and other raw materials and waste plastic. The outer core is not covered with the protective film layer, and the inner core is completely exposed to the outside natural environment. It has poor waterproof performance, poor weather resistance, and is resistant to wind, sun and rain. It is difficult to resist moisture vapor erosion and sudden temperature changes. It is prone to mildew when encountering moisture and has a short service life.

Compared with the traditional aluminum-plastic composite profiles, the present invention has the following positive beneficial effects:

The profile body of the invention is composed of an inner core and a protective film layer, and the protective film layer functions as an interface, and has the advantages of both internal and external. For the inner core, the protective film layer is the outer interface of the inner core, and the inner core is completely wrapped. The protective film layer is made of pure (single kind of new) plastic. The pure plastic has dense texture, high toughness, good air tightness, good waterproof performance, good weather resistance, wind and sun and rain, and can withstand the tide. Vapor erosion and sudden temperature change, it plays a very good role in protecting the inner core. The plastic layer of the protective film layer is the same as the plastic type of the inner core. Although it is new and old, they have the same thermoplastic properties and can pass. The combination of the co-extrusion methods is conducive to simplifying the production process and improving the yield.

The protective film layer is made of pure plastic film, and the appearance is beautiful. It just makes the surface rough and the gray inner core completely obscures, which is autifying the effect.

The protective film layer acts as an internal interface for the outer decorative layer. Since the protective film layer is made of pure (single kind of new) plastic, it is easy to select an adhesive that matches the properties of the protective film layer. The outer decorative layer is attached, and the bonding is firm, and it is not easy to open the glue.

The biggest highlight of the present invention is that a co-extrusion method is proposed for attaching a protective film layer to the surface of the inner core, and it is difficult to realize a co-extrusion process between different kinds of plastic resins, so the inner core and the protective film layer must select the same plastic. kind.

DRAWINGS

BRIEF DESCRIPTION OF THE DRAWINGS Figure 1 is a schematic view showing the structure of a profile body of the present invention.

Fig. 2 is an enlarged view of a portion A of Fig. 1.

Figure 3 is a schematic view of the profile body of Figure 1 prior to bonding with the decorative layer.

Figure 4 is a side view of Figure 3.

Figure 5 is a schematic view of the profile body of Figure 1 combined with a decorative layer.

Fig. 6 is a partial enlarged view of B of Fig. 5;

Detailed ways

Embodiment 1

The invention relates to a method for producing aluminum-plastic wood fiber composite profiles, comprising

the following steps:

Step one, preparing materials:

(1) Polypropylene PP (Polypropylene) thermoplastic waste plastic is used as the main material. The main material can be recycled plastic bottles, plastic cylinders, plastic cups and other plastic containers. The material is polypropylene PP (Polypropylene). The plastic cylinder and the plastic cup are crushed by a crusher, and extruded into a spherical plastic pellet of uniform size (as a main material) by an extruder, and the spherical diameter of the plastic pellet is 2 mm.

(2) Plant fiber is used as an auxiliary material, and the plant fiber is sawdust. The sawdust is crushed into 40 mesh powder surface by a roller compactor.

(3) Purchase 300 mesh mineral powder as filler, mineral powder is glass fiber powder,

(4) A chemical reagent having a coupling action is selected as the additive, and the additive is maleic anhydride acid (MSA).

Step 2: Mixing: The ratio of each raw material by weight percentage is:

The main material polypropylene PP accounts for 50%.

Excipient sawdust accounts for 40%.

Filled glass fiber powder accounts for 6%.

The additive maleic anhydride acid accounts for 4%.

The above-mentioned main materials, auxiliary materials, fillers and additives are put into the mixing machine in proportion, heated and kneaded, and extruded into a spherical plastic particle of uniform size by an extruder,

and used as a raw material for the core of the production profile. The plastic particles have a ball diameter of 3 mm.

Step 3: Produce the profile body through the co-extrusion equipment production line:

The co-extrusion equipment production line consists of two parts. The first part is a single-screw or twin-screw extruder. The extruder is equipped with a co-extrusion mold. The co-extrusion mold is a jacketed mold, and the second part is a cooling molding equipment.

Put the raw material processed in step 2 for the core of the profile into a hopper of the extruder, and put the same plastic material (new plastic) as the material of the main material into the extruder. In a hopper, the raw material of the protective film layer is a new plastic (pure plastic) made of polypropylene PP (Polypropylene), the extruder is started, and the hot-melt inner core material and the protective film layer raw material are co-extruded by a co-extrusion die. Extrusion is performed, and the extrusion processing of the inner core 1 and the pellicle layer 2 is completed simultaneously, and the inner core 1 and the pellicle layer 2 are in a co-extrusion process, and the thermoplastic energy is uniform, thereby being tightly integrated into one body as shown in FIG. 1 and FIG. 2. As shown, the advantages are strong bonding, high strength, sound insulation, good thermal insulation performance, good airtight performance, waterproof, and cooling and shaping equipment to form the profile body 3.

Step 4: Laminating process:

In the laminating process, the decorative layers 4 and 5 are attached to the main body 3, as shown in Figs. 3 and 4, and the coated surface of the main body 3 is an outdoor surface and an indoor surface.

In this embodiment, the decorative layers 4, 5 are composed of aluminum foil.

The aluminum foil is coated with an adhesive, the aluminum foil is placed on the laminating machine station, and the profile body 3 is placed on the slide of the inlet end of the laminating machine. Under the driving of the conveyor belt, the profile body 3 enters the laminating machine and passes through the coating. The film machine is hot melted, and the aluminum foil is bonded to the profile body to form a finished product as shown in Figs.

Embodiment 2

The invention relates to a method for producing aluminum-plastic wood fiber composite profiles, comprising the following steps:

Step one, preparing materials:

(1) Polyethylene PE (Polyethylene) waste plastic is used as the main material. The main material can be recycled plastic bottles, plastic cylinders, plastic cups and other plastic containers. The material is polyethylene PE (Polyethylene), the above plastic bottles, The plastic cylinder and the plastic cup are crushed by a crusher, and extruded into a spherical plastic pellet of uniform size (as a main material) by an extruder, and the spherical diameter of the plastic pellet is 3 mm.

(2) Plant fiber is used as an auxiliary material, and the plant fiber is bamboo powder. The bamboo powder is crushed into a 50-mesh powder surface by a roller compactor.

(3) Purchase 400 mesh mineral powder as filler, mineral powder is asbestos powder,

(4) A chemical reagent having a coupling function is selected as an additive, and the additive is maleic anhydride acid (commonly known as MSA).

Step 2: Mixing: The ratio of each raw material by weight percentage is:

The main material polyethylene PE accounts for 55%.

Excipient bamboo powder accounts for 38%.

Packed asbestos powder accounts for 5%.

The additive maleic anhydride acid accounts for 2%.

The above-mentioned main materials, auxiliary materials, fillers and additives are put into the mixing machine in proportion, heated and kneaded, and extruded into a spherical plastic particle of uniform size by an extruder, and used as a raw material for the core of the production profile. The plastic particles have a spherical diameter of 4 mm.

Step 3: Produce the profile body through the co-extrusion equipment production line:

The coextrusion equipment production line consists of two major parts.

The first part is a single-screw or twin-screw extruder. The extruder is equipped with a co-extrusion mold. The co-extrusion mold is a sleeve mold, and the second part is a cooling molding equipment.

Put the raw material processed in step 2 for the core of the profile into a hopper of the extruder, and put the same plastic material (new plastic) as the material of the main material into the extruder. In a hopper, the raw material of the protective film layer is a new plastic (pure plastic) made of polyethylene PE (Polyethylene), the extruder is started, and the hot-melt core material and the protective film layer raw material are co-extruded by a co-extrusion die. Extrusion is performed, and the extrusion processing of the inner core 1 and the pellicle layer 2 is completed simultaneously, and the inner core 1 and the pellicle layer 2 are in a co-extrusion process, and the thermoplastic energy is uniform, thereby being tightly integrated into one body as shown in FIG. 1 and FIG. 2 . As shown, the advantages are strong bonding, high strength, sound insulation, good thermal insulation performance, good airtight performance, waterproof, and cooling and shaping equipment to form the profile body 3.

Step 4: Laminating process: The laminating process is to attach the decorative layers 4 and 5 to the profile main body 3. As shown in FIG. 3 and FIG. 4, the laminating surface of the profile main body 3 may be an outdoor surface and an indoor surface.

In this embodiment, the decorative layers 4, 5 are composed of an aluminum foil.

The aluminum foil is coated with an adhesive, the aluminum foil is placed on the laminating machine station, and the profile body 3 is placed on the slide of the inlet end of the laminating machine. Under the driving of the conveyor belt, the profile body 3 enters the laminating machine and passes through the coating. The film

machine is hot-melted, and the aluminum foil is bonded to the profile body 3 to form a finished product as shown in Figs. 5 and 6.

Embodiment 3

The invention relates to a method for producing aluminum-plastic wood fiber composite profiles, comprising the following steps:

Step one, preparing materials:

(1)The waste plastic of high density polyethylene (HDPE) is used as the main material. The main material can be plastic bottles such as recycled plastic bottles, plastic cylinders and plastic cups. The materials are all high density polyethylene (HDPE), and the above plastics are used. The bottle, plastic tube and plastic cup are crushed by a crusher, and extruded into a spherical plastic particle of uniform size (as a main material) by an extruder, and the spherical diameter of the plastic particle is 4 mm.

(2)Plant fiber is used as an auxiliary material, the plant fiber is linen, and the linen is crushed into a 60-mesh powder surface by a roller compactor.

(3)Purchase 500 mesh mineral powder as filler, mineral powder is mica powder,

(4)A chemical reagent having a coupling action is selected as the additive, and the additive is maleic anhydride.

Step 2: Mixing: The ratio of each raw material by weight percentage is

The main material high density polyethylene accounts for 30%.

Excipient linen accounts for 38%.

The filler mica powder accounts for 30%.

The additive is maleic anhydride acid, which accounts for 2%.

The above-mentioned main materials, auxiliary materials, fillers and additives are put into the mixing machine in proportion, heated and kneaded, and extruded into a spherical plastic particle of uniform size by an extruder, and used as a raw material for the core of the production profile. The plastic particles have a ball diameter of 5 mm.

Step 3: Produce the profile body through the co-extrusion equipment production line:

The coextrusion equipment production line consists of two major parts.

The first part is a single-screw or twin-screw extruder. The extruder is equipped with a co-extrusion mold. The co-extrusion mold is a sleeve mold, and the second part is a cooling molding equipment.

Put the raw material processed in step 2 for the core of the profile into a hopper of the extruder, and put the same plastic material (new plastic) as the material of the main material into the extruder. In a hopper, the raw material of the protective film layer is a new plastic (pure plastic) made of high-density polyethylene (HDPE), the extruder is started, and the hot-melt core material and the protective film layer are co-extruded by a co-extrusion die. The raw material is extruded, and the extrusion processing of the inner core 1 and the protective film layer 2 is completed simultaneously, and the inner core 1 and the protective film layer 2 are in a co-extrusion process, and the thermoplastic energy is uniform, thereby being closely integrated into one body as shown in FIG. 2, the advantages are strong combination, high strength, sound insulation, good thermal insulation performance, good air tight performance, waterproof, cooled and shaped by cooling molding equipment, constitute the profile body 3.

Step 4: Laminating process:

In the laminating process, the decorative layers 4 and 5 are attached to the main body 3, as shown in Figs. 3 and 4, and the coated surface of the main body 3 is an outdoor surface and an indoor surface.

In this embodiment, the decorative layers 4, 5 are composed of a wood grain film.

Applying a binder to the wood grain film, placing the wood grain film on the laminating machine station, placing the profile body 3 on the slideway at the inlet end of the laminating machine, and driving the profile body 3 into the film under the driving of the conveyor belt. The machine is hot-melted by a laminating machine, and the wood grain film is bonded to the profile body 3 to form a finished product as shown in FIGS. 5 and 6.

Embodiment 4

The invention relates to a method for producing aluminum-plastic wood fiber composite profiles, comprising the following steps:

Step one, preparing materials:

(1) The waste plastic of polyvinyl chloride (Polyvinylchloride) is used as the main material. The main material can be recycled plastic bottles, plastic cylinders, plastic cups and other plastic containers. The material is polyvinyl chloride (Polyvinylchloride). The bottle, plastic tube and plastic cup are crushed by a crusher, and extruded into a spherical plastic particle of uniform size (as a main material) by an extruder, and the spherical diameter of the plastic particle is 4 mm.

(2) Plant fiber is used as an auxiliary material. The plant fiber is a mixture of bamboo powder and sawdust. The weight percentage of the two is 50% each. The mixture of bamboo powder and sawdust is crushed into a 70 mesh powder surface by a roller compactor.

(3) Purchase 800 mesh mineral powder as filler, mineral powder is chalk powder,

(4) A chemical reagent having a coupling action is selected as the additive, and the additive is maleic anhydride.

Step 2: Mixing: The ratio of each raw material by weight percentage is

The main material polyvinyl chloride accounts for 45%.

Excipients bamboo powder and sawdust mixture accounted for 45%,

Filler chalk powder accounts for 6%.

The additive maleic anhydride acid accounts for 4%.

The above-mentioned main materials, auxiliary materials, fillers and additives are put into the mixing machine in proportion, heated and kneaded, and extruded into a spherical plastic particle of uniform size by an extruder, and used as a raw material for the core of the production profile. The plastic particles have a spherical diameter of 6 mm.

Step 3: Produce the profile body through the co-extrusion equipment production line:

The co-extrusion equipment production line consists of two parts. The first part is a single-screw or twin-screw extruder. The extruder is equipped with a co-extrusion mold. The co-extrusion mold is a jacketed mold, and the second part is a cooling molding equipment.

Put the raw material processed in step 2 for the core of the profile into a hopper of the extruder, and put the same plastic material (new plastic) as the material of the main material into the extruder. In a hopper, the raw material of the protective film layer is a new plastic (pure plastic) made of polyvinyl chloride PVC, and the extruder is started. The co-extrusion die is used to squeeze the hot-melt inner core material and the protective film layer raw material by co-extrusion. Pressing and synchronizing the extrusion processing of the inner core 1 and the pellicle layer 2, the inner core 1 and the pellicle layer 2 are in a co-extrusion process, and the thermoplastic energy is uniform, thereby being tightly integrated into one body as shown in FIG. 1 and FIG. 2. The utility model has the advantages of strong bonding, high strength, sound insulation, good heat preservation performance, good airtight performance and waterproofness, and is cooled and shaped by the cooling forming device to constitute the profile body 3.

Step 4: Laminating process:

In the laminating process, the decorative layers 4 and 5 are attached to the main body 3, as shown in Figs. 3 and 4, and the coated surface of the main body 3 is an outdoor surface and an indoor surface. In this embodiment, the

decorative layers 4, 5 are composed of a wood grain film, an adhesive is applied on the wood grain film, the wood grain film is placed on the laminating machine station, and the profile body is placed at the inlet end of the laminating machine. On the slide, under the driving of the conveyor belt, the profile body 3 enters the laminating machine, and is melted by the laminating machine, and the wood grain film is bonded to the profile body 3 to form a finished product as shown in FIG. 5 and FIG.

Embodiment 5

The invention relates to a method for producing aluminum-plastic wood fiber composite profiles, comprising the following steps:

Step one, preparing materials:

(1) Polyethylene PE (Polyethylene) waste plastic or new plastic is used as the main material. The waste plastic can be recycled plastic bottles, plastic cylinders, plastic cups and other plastic containers. The material is polyethylene PE (Polyethylene). The plastic bottle, plastic tube and plastic cup are crushed by a crusher, and extruded into a spherical plastic particle of uniform size (as a main material) by an extruder, and the diameter of the plastic particle is 3 mm.

(2) Plant fiber is used as an auxiliary material, the plant fiber is straw powder, and the straw powder is crushed into 80 mesh powder surface by a roller compactor.

(3) Purchase 600 mesh mineral powder as filler, mineral powder is talcum powder,

(4) A chemical reagent having a coupling action is selected as the additive, and the additive is maleic anhydride.

Step 2: Mixing: The ratio of each raw material by weight percentage is

The main material polyethylene PE accounts for 40%.

Excipient straw powder accounts for 46%.

Packed talcum powder accounts for 10%.

The additive maleic anhydride acid accounts for 4%.

The above-mentioned main materials, auxiliary materials, fillers and additives are put into the mixing machine in proportion, heated and kneaded, and extruded into a spherical plastic particle of uniform size by an extruder, and used as a raw material for the core of the production profile. The plastic particles have a spherical diameter of 4 mm.

Step 3: Produce the profile body through the co-extrusion equipment production line:

The coextrusion equipment production line consists of two major parts.

The first part is a single-screw or twin-screw extruder. The extruder is equipped with a co-extrusion mold. The co-extrusion mold is a sleeve mold, and the second part is a cooling molding equipment.

Put the raw material processed in step 2 for the core of the profile into a hopper of the extruder, and put the same plastic material (new plastic) as the material of the main material into the extruder. In a hopper, the raw material of the protective film layer is a new plastic (pure plastic) made of polyethylene PE (Polyethylene), the extruder is started, and the hot-melt inner core material and the protective film layer raw material are co-extruded by a co-extrusion die. Extrusion is performed, and the extrusion processing of the inner core 1 and the pellicle layer 2 is completed simultaneously, and the inner core 1 and the pellicle layer 2 are in a co-extrusion process, and the thermoplastic energy is uniform, thereby being tightly integrated into one body as shown in FIG. 1 and FIG. 2 . As shown, the advantages are strong bonding, high strength, sound insulation, good thermal insulation performance, good airtight performance, waterproof, and cooling and shaping equipment to form the profile body 3.