

# Waste Plastic Recycling Granulation Process

## Detail Introduction :

What Are the Plastic Granulation Processes?

What is Plastic Granulation Recycling?

## What Are the Plastic Granulation Processes?

Plastic granulation technology includes meltless granulation, wet granulation, dry granulation, organic solvent-assisted softening granulation, compound regeneration granulation, hot air circulation heating and melting granulation, etc. Plastic products bring convenience to human life. At the same time, it has also brought significant adverse effects, especially waste plastics have risen sharply with the increase in the use of plastic products, and the pollution caused to the environment has become increasingly severe.

Heavy. Recycling, recycling and granulation provide a resource path for the treatment of waste plastics, which reduces the pollution of waste plastics to the environment and realizes the recycling of energy.



## Disposal of Waste Plastic

### 1. Landfill treatment

Landfilling waste plastics is a simple and low-cost method of disposal. Plastic is bulky, light and does not decompose and decay over a long period. Landfilling waste plastic takes up a large area of land, seriously wastes national land resources, destroys the soil structure and hinders the circulation and infiltration of groundwater. After landfilling, waste plastic will be washed away by rainwater for a long time, bringing many harmful substances into the human living environment and endangering human health.



## 2. Incineration and recovery of heat energy

The incineration recovery heat energy is the heat generated by recycling waste plastics. Waste plastics that are difficult to separate and cannot be recycled can be processed through combustion recovery heat energy. The method can realize the effective use of energy, turn waste into treasure, convenient operation and low cost. Still, it smells unpleasant during incineration and releases various harmful substances, such as the strong carcinogen dioxin, which seriously endangers human health and the ecological environment.



## 3. Regeneration granulation

There are many classification methods for plastics. According to the different reactions of various

plastics to temperature, they can be divided into thermoplastics and thermosetting plastics. Thermoplastics refer to plastics that can be repeatedly heated, melted, cooled and solidified within a certain temperature range, such as polyethylene, poly Vinyl chloride, polypropylene, etc.; thermosetting plastics refer to plastics that do not melt after curing, such as phenolic, epoxy, and unsaturated polyester plastics. The former occupies a large proportion of waste plastics and can be recycled through regeneration granulation, while the latter cannot be melted after solidification and is difficult to recycle. It is often crushed and used as a filler.

## **What is Plastic Granulation Recycling?**

Recycling granulation is a recycling method that turns waste plastics into granules through a granulation process. Recycled particles can be used for moulding and processing, and the performance of the obtained product is similar to that of the original product, which has high economic value. Compared with landfill treatment and incineration treatment, regeneration granulation is the true recycling of resources.

## **The Difference Between Wet Plastic Granulation and Dry Plastic Granulation**

### **(1). Wet granulation**

The process flow of wet granulation is: collection ? sorting ? crushing ? washing ? drying ? melting ? pelletizing. There are many kinds of waste plastics collected, and the surface is attached with dust, sand, oil stains, etc. These impurities seriously affect the quality of recycled plastics. Generally, these impurities are removed by increasing the number of crushing and cleaning to improve the quality of recycled products and then squeeze them through an extruder. After forming, the molten plastic is cut into suitable and uniform particles. The collection and sorting are done manually. The crushing, cleaning and drying are done by crushers, cleaning devices and dryers. The plastic is melted in the screw extruder. The molten plastic is extruded through the die and pelletized by the pelletizing device.

### **(2). Dry granulation.**

The process flow of dry granulation is collection?crushing?separation and impurity removal?melting?cutting. Dry granulation eliminates the cleaning and drying process and increases the separation and removal of heterocyclic nodes. Separation methods are divided into float-sink separation, flotation separation, electrical separation, near-infrared spectroscopy separation, etc. Compared with wet granulation, dry granulation eliminates the need for cleaning and drying, saving water resources, especially in water It is very suitable for places where resources are severely lacking, but because the quality of products depends on the thoroughness of impurity removal, special impurity removal equipment needs to be installed.

Preparation and removal of impurities increase production costs.