

Unit –IV

EXTRUSION BASED SNACKS

Extruder components – Single and Twin screw

Single screw extruder means that there is only one screw in the extruder barrel.

· Extrusion System

The main function of the extrusion system is to melt and plasticize the polymer material to form a uniform melt, and realize the transition from the glass state to the viscous fluid state.

The extrusion system mainly includes feeding system, screw and barrel. It is the core part of the extruder, and the screw is the key core component of the extruder.

· Transmission System

The transmission system is usually composed of a motor, a reducer and a bearing. Its function is mainly to drive the screw and supply the torque and torque required by the screw in the extrusion process.

During the extrusion process, the screw speed is required to be stable to ensure uniform product quality. However, under different circumstances, the screw speed needs to be adjustable so that the same equipment can be adapted to extrude different materials or different shapes products.

· Heating and Cooling System

The heating and cooling system of the extruder consists of a heating device and a cooling device, which is a necessary condition for the smooth operation of the extrusion process. The heating device and cooling device must ensure that the temperature conditions meet the process requirements.

Twin Screw

The screw system of a parallel twin-screw extruder is generally divided into 4 sections: conveying section, melting section (exhaust port), plasticizing section (vacuum port), and discharging section.

- Conveying section: The function is to transport materials and prevent backing.
- Melting section: In this section, the materials are fully melted and mixed through heat conduction and frictional shearing.
- Plasticizing section: further melt and mix the ingredients of the material, with the function of distributing and dispersing mixing.

- Discharge section: conveying and pressurizing, forming a certain pressure, making the materials more compact, and at the same time further mixing, to achieve the purpose of extrusion and granulation.

