

# Controlled Crushing and Sterilization of Extruded Food

With the great improvement of people's living standards, the requirements of food safety are also rising.

[Fully automatic puffed food machinery/puffed snack factory/puffed production line](#)

In the process of food processing, the granularity of finished products can not be strictly controlled and the problem of secondary sterilization needs to be solved urgently.

[Microwave drying machinery and equipment](#)

Aiming at these problems, this paper uses impeller mill and airflow classifier to control the granularity of extruded food products, and explores a controlled crushing and sterilization process and equipment, which provides a new technology and new ideas for food processing industry.

A self-made impeller pulverizer was used to investigate the influence of particle size change on puffed food, verify the grading effect of airflow grading technology on puffed food, and obtain a controlled pulverizing technology and equipment for puffed food.



The results show that when the clearance between screen and impeller is 8mm, the speed of crushing machine is 864r/min, the flow rate of induced draft fan is 868m<sup>3</sup>/h and the diameter of

screen hole is 10mm, the proportion of 20,000 mesh powder in the experimental products is the largest\_2. When the speed of classifier is 90r/min, the secondary air flow is 175.60m<sup>3</sup>/h, and the gas-solid concentration is 0.12kg/kg, the classification effect is better, which verifies that the air classifier is suitable for puffed food crushing and grading. A controlled pulverizing technology and equipment (LNS-132 particle crusher) for puffed food was obtained and applied in industrial production.

A high-temperature crushing experimental platform was established to compare the sterilization effect of expanded black rice under dry-heat and high-temperature crushing conditions.

The feasibility of high-temperature crushing of expanded food with both sterilization was discussed by combining CFD numerical simulation and industrial test. The applicability of LNS-132 particle crusher for high-temperature crushing and sterilization was also discussed.

The results showed that the germicidal efficacy of extruded food sterilized by dry heat for 6 hours at 120 C could reach the standard only in 7.42s in the experimental platform of high temperature crushing, which verified the feasibility and efficiency of high temperature crushing of the experimental platform.

By estimating the residence time of materials in LNS-132 granular crusher equipment was 8.64s, which was longer than that of high temperature crushing test platform, the LNS-132 granular crusher was obtained with a higher residence time than that of high temperature crushing test platform. Warm comminution has the applicability of sterilization.