



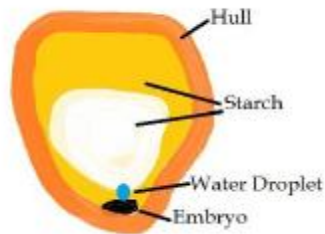
**SNS COLLEGE OF TECHNOLOGY**  
**COIMBATORE-35**



**19FTE302 Technology of Snack and Extruded Foods**  
**UNIT –III**  
**CORN BASED SNACKS**

**POPCORN**

Corn kernels are the fruits of corn (called maize in many countries). Maize is a grain, and the kernels are used in cooking as a vegetable or a source of starch. The kernel comprise endosperm, germ, pericarp, and tip cap. One ear of corn contains roughly 800 kernels in 16 rows.

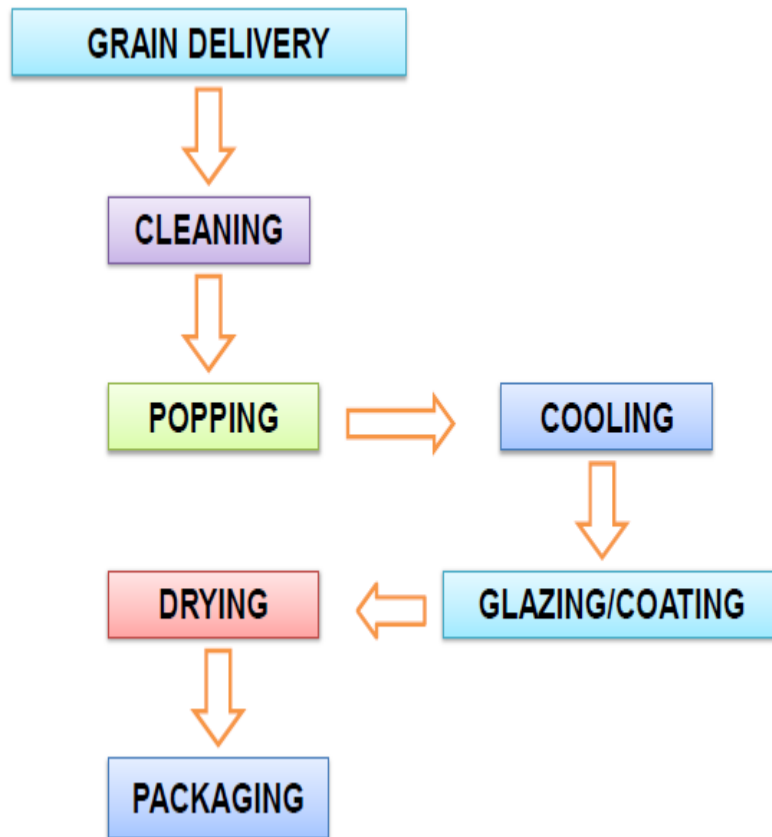


**Popcorn processing**

As heat is applied to the dried kernels, the droplet of water converts to steam, and pressure begins to build. Once the hull can no longer hold the pressure of the steam, the kernel explodes. The starch inside the kernel turns into the white fluffy, crunchy stuff we call popcorn.

Popcorns come in a wide variety and flavours. In India, popcorn re mostly made with 'butterfly' corn kernels which form more elongated, irregular shapes upon popping up. Another variant called 'mushroom' corn results in larger, rounded pieces of popcorn that are easier to cover in a consistent coating of toppings like caramel or melted chocolate.

Crude fat	3.8–4.6%
Crude protein	8.1–10.5%
Reducing sugars	0.07–0.23%
Starch	61.0–67.9%
Amylose	27.0–28.5%





## PROCESS OF POPCORN

**GRAIN DELIVERY:** Grain is delivered to mills by covered trucks and hopper railcars. The distance the grain has travelled varies greatly. Grain deliveries will frequently have gone through a number of aggregation steps prior to arriving at the mill (farmer, country elevator, terminal elevator etc.). The number of conveyances making deliveries of grain can vary depending on the time of year with more deliveries at harvest time.

**CLEANING THE POPCORN:** The dried ears of popcorn are then transferred by conveyor belt to the factory and a machine called a scalper. The scalper strips the kernels from the cobs. Simultaneously, a cleaner and de-stoner sort out the shucking and any dirt or particles by passing it through a series of screens to separate the kernels.



**POPPING:** There are two methods. The dry method consists of putting the unpopped grain in a basket or wire cage, agitating it over a heat source like the campfire or coal stove, allowing the corn to pop, and seasoning it with butter and salt.

The general method in caramel popcorn used is the wet-pop method, corn is placed in a container with a solid bottom. Oil is added (either before the corn or poured on top), and the oil helps to distribute the heat and cause more even and complete popping.

Sugar, baking powder and sugar powder is added to popcorn caramelizing machine for it to melt and mix.

Next the Popped corns are put into the caramelizing machine and are coated or glazed with the mixture.

After flavor coating the popcorn is entered to the oven to vaporize water inside the sugar.

**Packaging of Product:** Finally popcorns are packed by a packing machine, which simply seals one end of continuous packaging first, then it simply fills the packet as per required weight & seals the other end, generating the required packet.

**Equipments used:**

**GRAVITY SEPARATOR:** Gravity separator machine may be used to separate any type of dry bulk particles that are similar in size and shape but differs in weight. Gravity separator are suitable for processing of the seeds of corn, Wheat, rice, soybean, sorghum, various vegetables and other agricultural and sideline products.



**Popcorn Making Machine:**

The hot air popcorn popper is used to dry and puff the corn. It is equipped with compelling ventilation heating system, inner layer airflow baffle, accurate temperature control and tricked insulation layer.



### **POPCORN CARAMELIZING MACHINE-**

The dried popcorn is put into the machine for caramel coating.



### **ELECTRICITY OVEN-**

After the coating, the popcorn is put into the oven to vaporize the water inside sugar.



### **POPCORN FILLING MACHINE:**

This machine is used to package the coated popcorns in the boxes or plastics packages.

