Ministry of Food Processing Industries
Government of India

NIFTEM
Knowledge. Innovation. Outreach

PROCESSING OF BESAN NAMKEEN

AATMANIRBHAR BHARAT

PM Formalisation of Micro Food Processing Enterprises Scheme (PM FME Scheme)

INTRODUCTION

Industrial Overview:

- Namkeen is a Hindi term that means "savory flavor."
- Namkeen is a derivative of the word Namak (meaning salt).
- Namkeen is a term that refers to savory snack items in general.
- Both black and regular white salt are used in Indian cooking, which gives it the salty flavor many people like.
- Other namkeen snacks common in Indian cuisine include khaara, farsan, chivda, sav, chips and bhujiya.
- Namkeen foods are typically designed to be portable, quick, and satisfying.

INTRODUCTION

Product Description:

- Processed snack foods, as one form of convenience food, are designed to be less perishable, more durable, and more portable than prepared foods.
- Sweeteners, preservatives, and enticing additives like chocolate, peanuts, and custom tastes are frequently used.
- Dalmoth, Chanachur & Bhujia are the important names of salted snacks.

INTRODUCTION

MARKET POTENTIAL

- ✓ India traditional snacks market has shown tremendous growth in the past couple of years.
- ✓ The market is forecasted to grow with a CAGR of more than 7% in near future.
- ✓ Namkeen is the dominant segment, followed by the Extruded Snacks.
- ✓ The India Snacks Market will be more than INR 1 Billion by the end of 2024.
- ✓ But this scenario is expected to change during the forecast period of 2020-2024.

FACTORS AFFECTING MARKET POTENTIAL

INTRODUCTION

Raw Materials Required:

- Besan
- Oil
- Spices
- Dal
- Peanut
- Potato

INTRODUCTION

Raw Material Description

- BESAN is a product obtained by grinding, dried and decuticled Bengal Gram (L: Cicer arietinum).
- Besan is a bengal gram flour widely consumed in India.
- It is yellowish in colour and possess characteristic bengal gram taste and smell.
- Bengal gram is a major pulse crop in India, widely grown for centuries and accounts for nearly 40 percent of the total pulse production.

PROCESS & MACHINERY REQUIREMENT

Raw Material Aspects:

- The Besan is obtain from Bengal gram.
- The color of the gram seeds is brown.
- On one end, they're pointed, and on the other, they're spherical.
- The thick seed coat protects the seed.
- The seed coat is made up of two layers: the brownish testa on the outside and the papery white membranous tegmen on the inside.

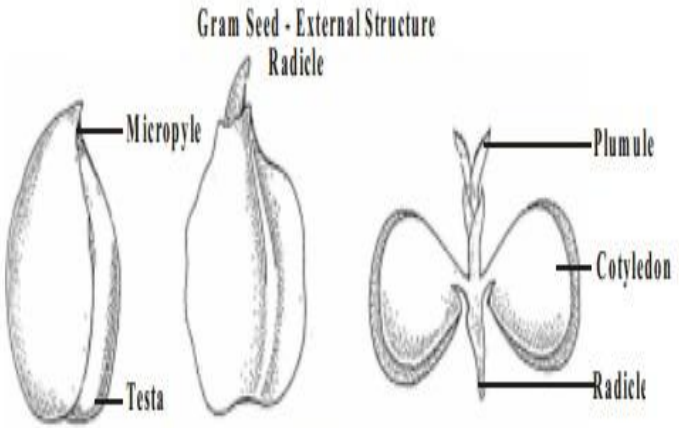

Fig : Structure of Dicot seed

PROCESS & MACHINERY REQUIREMENT

Source of Raw Material:

- India is the world's largest producer of pulses (25 percent of global production), the consumer (27 percent of global consumption), and the importer (14 percent).
- Gram is the most important pulse, accounting for roughly 40% of total production of Pulses in India.
- The top five pulse-producing states are Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh, and Karnataka.
- Oil, spices and other raw material are easily available in the local market.

PROCESS & MACHINERY REQUIREMENT

Technologies:

Extrusion and frying

- it is the most popular food processing method in preparing snacks like Namkeen.
- extrusion and frying refer to the frying of this extruded food product.
- this process involved the shaping of food through specific shape die.
- The extruded food is then cut to a specific size by blades.
- the extruded material is then fried in a frying machine.

PROCESS & MACHINERY REQUIREMENT

Technologies:

Cooking extrusion

It’s a food processing method

Raw food Mix is cooked within the barrel of the cooking extruder

This results in high temperature & pressure of food mix

Pressure gradient generated immediately after extrusion results

in Puffing of food.

Therefore this process is widely used for puffed snacks

PROCESS & MACHINERY REQUIREMENT

Manufacturing Process:

Raw material

- Raw materials are procured from the local vendor.
- All raw materials are placed in the inventory

Kneading

- Raw materials for dough are fed to kneading machine
- Kneading Machine kneads fed raw material into dough.

PROCESS & MACHINERY REQUIREMENT

Manufacturing Process:

Extrusion

- Prepared Dough is then fed to Namkeen Extruder
- Appropriate die is mounted as per shape required

Frying

- Extruded product lands into the frying tank of Frying Machine
- Namkeen Frying Machine fries various Namkeen components
- Mostly different components are fried separately

PROCESS & MACHINERY REQUIREMENT

Manufacturing Process:

De-oiling

After frying they are passed through de-oiling machine.

It removes most of the excess oil & makes product dry.

Mixing

Most seasoning machines can perform both mixing & seasoning

Tough many large scale players use separate machines

In either case, namkeen are initially mixed & then seasoned

PROCESS & MACHINERY REQUIREMENT

Manufacturing Process:

Packaging

Namkeen is then weighed & packed using appropriate machines

Weighing machine

Used for weighing the raw material and ingredients

PROCESS & MACHINERY REQUIREMENT

Flow Chart:

Machine and Equipments	Description	Machine Image
Sifter	➢ It's a sifter class machine, used for sifting the Besan ➢ Remove large particulate impurities from Besan Flour	
Dough Kneader	➢ It simplify kneads the raw material ingredients ➢ In order to produce the required dough	

PROCESS & MACHINERY REQUIREMENT

Flow Chart:

Machine and Equipments	Description	Machine Image
Namkeen Extruder	➢ It's a extruder class machine used to extrude dough ➢ Can form various namkeens using appropriate dies	
Fryer Machine	➢ It's a fryer class machine designed for efficient frying ➢ Modern Machines can fry different types of namkeens	

PROCESS & MACHINERY REQUIREMENT

Flow Chart:

Machine and Equipments	Description	Machine Image
Seasoning Machine	➢ It's a rotating tumbler device used to apply seasoning ➢ It's used to mix Namkeen components with salt & spices	
De-Oiling Machine	➢ It's a simple machine designed to remove oil from product ➢ Simplest machine use perforated drum & motor arrangement	

Process & Machinery Requirement

Additional Machine & Equipment:

Machine and Equipments	Used	Machine Image
Food Grade Conveyor	These are conveyors with food grade belt to maintain food safety standards set by monitoring authorities.	
Material handling equipment	Material handling equipment is mechanical equipment used for the movement, storage etc. work.	

Process & Machinery Requirement

General Failures & Remedies:

S. No.	General Failures	Remedies
1.	Ball bearing failure of various machine	➢ Proper periodic lubrication of all bearings in various machines. ➢ Regular replacement of all bearing to prevent critical failures.
2.	Power Drive Overload	➢ Ensure proper weighing & metering specially in case of semi-automatic plant. ➢ Install warning sensor in buffer region of loading capacity to ensure efficient operation.
3.	Mechanical Key Failure	➢ Ensure that mechanical keys are replaced as per there pre-defined operational life. ➢ Prevent Overloading.

Cont..

PROCESS & MACHINERY REQUIREMENT

General Failures & Remedies:

S. No.	General Failures	Remedies
4.	Loss of Interface	➢ This problem is dominant in newly established automatic plant, one must learn to maintain rules in plant & ensure no employee goes near transmission lines, unless authorised. ➢ Provide proper physical shielding for the connections.
5	Improper Sieving (Optical Sorters)	➢ This problem fundamentally occurs due problem with optical sensors. ➢ The solution involves cleaning the optical surface & if problem persists replacing the sensor.

PROCESS & MACHINERY REQUIREMENT

Nutritional Information:

Besan is the main ingredient for Namkeen

One cup (92 grams) of gram flour contains:

- Calories: 356
- Protein: 20 grams
- Fat: 6 grams
- Carbs: 53 grams
- Fiber: 10 grams
- Thiamine: 30% of the Reference Daily Intake (RDI)

PROCESS & MACHINERY REQUIREMENT

Nutritional Information:

Cont.

- Folate: 101% of the RDI
- Iron: 25% of the RDI
- Phosphorus: 29% of the RDI
- Magnesium: 38% of the RDI
- Copper: 42% of the RDI
- Manganese: 74% of the RDI

PROCESS & MACHINERY REQUIREMENT

Export Potential & Sales Aspect:

- Healthy snacks prepared from grains, legumes, and oilseeds.
- Consumers who are health-conscious appreciate their nutritional content.
- Target the market for specific ingredients, specialize in processing ingredients, or sell consumer goods as an exporter.
- In India, the market for Namkeen and snacks is worth INR one lakh crore.
- As a thriving industry, it has experienced exceptional growth in recent years and continues to expand swiftly.

PM-FME Scheme

The objectives of the scheme are:

- Support for capital investment for up-gradation and formalization with registration for GST, FSSAI hygiene standards and Udyog Aadhar;
- Capacity building through skill training, imparting technical knowledge on food safety, standards & hygiene and quality improvement;
- Hand holding support for preparation of DPR, availing bank loan and up-gradation;
- Support to Farmer Producer Organizations (FPOs), Self Help Groups (SHGs), producers cooperatives for capital investment, common infrastructure and support branding and marketing.
- https://mofpi.nic.in/pmfme/docs/SchemeBrochureI.pdf

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