Ministry of Food Processing Industries
Government of India

सत्यमेव जयते

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PROCESSING OF NOODLES

AATMANIRBHAR BHARAT

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

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INTRODUCTION

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Industrial Overview:

- Noodles are value-added meal products processed from rice.
- The product is an extruded product made from flour and Maida of tapioca.
- They are long threads with a thickness of 0.22 to 0.4 mm.
- In Asia, wheat noodles are so common that noodles account for about 40 per cent of wheat consumption.
- Typically, noodles are eaten in a wet, boiled, steamed or fried shape.
- Usually, noodles are made of unleavened wheat dough and are stretched, extruded, or rolled, then cut into different shapes.

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INTRODUCTION

Product Description:

- Noodles are a type of food that is rolled flat and cut into long strips or strings, stretched or extruded, from unleavened dough.
- The classification below is based on the state of information at the moment:
  - Based on raw material
  - Depending on Salt Used
  - Based on Size
  - Based on Manufacturing- Fresh- Noodle, Dry Noodle, Boiled Noodle & Steamed Noodle.

INTRODUCTION

Market Potential:

- In 2018, the global demand for instant noodles reached a size of US$ 42.2 billion, recording a CAGR of 6.2 percent between 2011 and 2018.
- China holds the leading position in the global instant noodles market on a geographical front.
- Noodles have been an integral part of Chinese cuisine. Indonesia, Japan, India, Vietnam, the United States, the Republic of Korea, Thailand and Saudi Arabia will be accompanied by China.

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- India's noodle market is one of the world's fastest growing markets, powered by

steady economic growth and consumer disposable income growth.

- Urbanization, rising income levels, working couples, interstate migration and

young India's changing lifestyle are main drivers for the demand for noodles.

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INTRODUCTION

Raw Material Description:

- The main raw materials are wheat flour or Maida and starch.
- The micro nutrients vary according to different instant noodle brands. Instant noodles are low in calories, protein, fibre, vitamins and minerals.
- Semolina and all types of flour are used to make Noodles or pasta, but soft white wheat flour is also preferred.

- Several commercial starch noodles made from legume, tuber, geshu (kudzu and sweet potato) and fernery starch are used.

- In Asian noodles, the addition of sodium chloride at 2-3% level could improve noodle texture.

- Edible oils such as palm oil, partly hydrogenated palm oil, pure lard, altered lard, and mixtures thereof are commonly used.

Types of Raw Material:

- Noodles are also made from flours or refined starches of plant species other than wheat, such as mung bean, sweet potato, pea, potato, corn, and rice.
- All-purpose flour- The all-purpose flour is made from wheat, but the whole grains are not used.
- To prepare a dough that's going to be solid and elastic, and that works well for a number of different noodles which can also be combined with egg, water, or oil.
- Semolina flour, which is a coarsely ground flour made from a particularly hard variety of wheat called durum.
- Whole-wheat flour, given its competitive health advantages compared to all-purpose or semolina flour, is also an increasingly popular alternative.

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PROCESS & MACHINERY REQUIREMENT

Raw Material Aspects:

- Basic required raw materials are wheat flour, starch, vegetable oils, different spices, Sodium Bicarbonate, etc.
- . Both anatomic components of the grain, including endosperm, bran, and germ, are found in whole-grain wheat flour (WGWF) in the same proportions as intact shape.
- WGWF thus provides considerably more fibre, vitamins, minerals, and phytochemicals than a refined wheat meal (RF).

- The gluten-forming proteins together make up approximately 80 percent of the endosperm proteins.
- The white flour contains other proteins such as amylase, protease, and lipase.
- In human diets, it is the most common carbohydrate in significant quantities in

essential foods such as potatoes, maize (corn), rice, wheat and cascade.

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PROCESS & MACHINERY REQUIREMENT

Source of Raw Material:

- Uttar Pradesh is the largest producer of wheat in an area with 9.75 million hectares (32%).
- Followed by Madhya Pradesh (18.75%), Punjab (11.48%), Rajasthan (9.74%), Haryana (8.36%), and Bihar (6.82%).
- As wheat is a major grown crop the availability of wheat grain is easy in the northern states of India.
- Various mandis are available in every district for wheat. Raw material can be procured from these mandis, local vendors, or direct from the farm.

PROCESS & MACHINERY REQUIREMENT

Technologies:

➢ **Fresh Raw Noodles**

- Fresh raw noodles are initial forms of noodles without secondary processing steps.
- The moisture content of fresh raw noodles is in the after sheet dough is cut into strands of desired length and width, fresh noodles are made.
- Fresh noodles often pass through a tunnel equipped with UV lights to spay until they are weighed and packed.

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Technologies:

➢ **Low-Moisture Steamed Noodles**

- Low-moisture steamed noodles are manufactured by steaming fresh raw noodles in dry steam.
- On a net conveyor going through a tunnel steamer, fresh noodles are cooked for 10-15 minutes.
- Steamed noodles developed by this process have a moisture content of less than 35%.

PROCESS & MACHINERY REQUIREMENT

Manufacturing Process:

- **Kneading and Mixing:**

The first step is the process of wheat flour and water being mixed into the mixing machine.

- **Creating noodle belt**

Then the dough send two rotating rollers, with two noodles bring as a single belt to spread the noodles equally**.**

- **Rolling**

The 10mm thick noodles are repeatedly flattened with four rollers by pressing rollers and gradually thin by 1mm thickness.

- **Slitting**

In order to add to the noodles manufacturing process, these noodles are then placed in the slitter.

- **Steaming:**

The pre-gelatinization process is then carried out in a steamer, which steams the instant noodles for one to five minutes.

- **Stacking**

It is then cut to 40-70 cm and moulded using a round or square-shaped metal mould serving.

- **De-watering and Frying**

Most noodles are either dewatered by frying oils or by air drying, thus giving rise to fried or non-fried noodles.

- **Cooling**

The noodles that are 100 degrees Celsius are cooled with air after dehydration in the process of processing noodles.

- **Check weight and detect metal**

In the event that some metal in the noodles is found or if the weight goes outside the present range, the commodity is discarded.

- **Adding the Taste-Maker**

The process consists of the addition of a tastemaker to improve noodles taste.

- **Packing**

The instantly ready noodles are then put together and seasonings and then sealed with aluminium foils in bags or containers as needed.

PROCESS & MACHINERY REQUIREMENT

Flow Chart:

Machine Name	Description	Machine Image.
Vertical type powder mixer	This machine is used for mixing the ingredients required to make noodles.	
Dough mixer blade type	With a rotating bowl in a Spiral mixer the spinning motion imitates hand kneading and rolling motions and gently mixes Noodles dough	

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Machine Name	Description	Machine Image.
Noodles making machine	**This machine consists of cutting knife, folding part, conveying net, machine frame and driving part. The main function is to cut the noodles in a certain length, different length means different weight.**	
Noodles Steamer Machine	This machine are used for steams the instant noodles after slitting for one to five minutes	

Machine Name	Description	
Noodle stacking Machine	The noodle stacking machine is used for shaping and cutting steaming process.	
Dryer machine	The Dryer machine is used for remove the execs water from the steamed noodles.	

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Machine Name	Description	Machine Image.
Frying	The frying machine is used for Fried instant noodles and are dried by oil frying for 1–2 minutes at a temperature of 140–160 °C	
Noodles packaging machine	Used for packaging the noodles for marketing in various packages.	

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Process & Machinery Requirement

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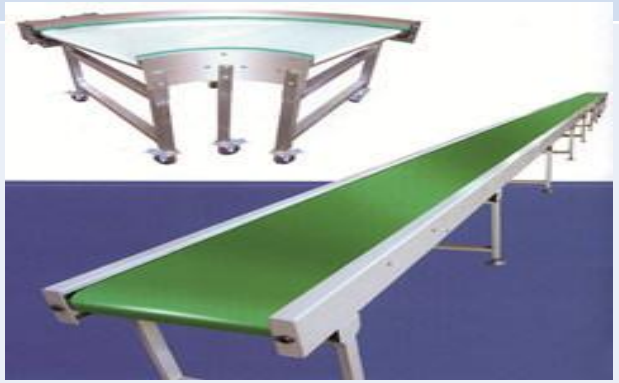
Additional Machine & Equipment:

Machine and Equipment	Uses	Pictures
Material handling Equipments	These Equipment's are used for material handling.	
Food Grade Conveyor	These are conveyors with food grade belt to maintain food safety standards set by monitoring authorities.	

Process & Machinery Requirement

General Failures & Remedies:

General Failures	Remedies
Ball bearing failure of various machine	1. Proper periodic lubrication of all bearings in various machines.
Power Drive Overload	1. Ensure proper weighing & metering specially in case of semi-automatic plant.
Mechanical Key Failure	1. Ensure that mechanical keys are replaced as per there pre-defined operational life. 2. Prevent Overloading.
Loss of Interface	1. Provide proper physical shielding for the connections.

PROCESS & MACHINERY REQUIREMENT

Nutritional Information:

Name	Noodles
Calories	146 Kcal./cup
Major Nutrients	➢ Selenium (54.36%) ➢ Vitamin B1 (35.92%) ➢ Vitamin B9 (21.75%) ➢ Carbohydrate (20.83%) ➢ Vitamin B3 (19.92%)
Health Benefits	Nutrition content, Essential nutrients, Low carbs, Full for longer

PROCESS & MACHINERY REQUIREMENT

Export Potential & Sales Aspect:

- Due to flexibility and simplicity, instant noodles have been one of the most popular food products in the world.
- The new noodles symbolize convenience, quality, and health.
- As universal food acceptance, noodles in most countries around the world have become a regular commodity.
- Convenience, low cost, and variety are driving demand for the commodity.
- The global instant noodles market reached a size of US$ 42.2 Billion in 2018, recording a CAGR of 6.2 percent during 2011-2018.
- The market valuation will also hit around US$ 57,5 billion by 2024, increasing by 5,2% in 2019-24 at CAGR

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PM-FME Scheme

- 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.

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GOVERNMENT OF INDIA

PM FORMALISATION OF MICRO FOOD PROCESSING ENTERPRISES SCHEME (PMFME)

TOTAL OUTLAY: RS.10,000 CRORE

- **2,00,000** FPOs/SHGs/Cooperatives and working micro enterprises to be directly benefitted
- Expected to generate **9 lakh** skilled and semi-skilled jobs
- To be implemented over a **5-yr period from 2020-21 to 2024-25**
- Cluster approach
- Focus on Perishables.

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