

TECHNICAL ARTICLE: NAMKEEN SNACKS PROCESSING SYSTEMS

FOOD HOT SPOT NAMKEEN SNACKS



NAMKEEN is a salty snack traditionally consumed in South Asian cultures, covering a range of products including whole legumes such as green peas, chickpeas, peanuts, cashews, Moong Dal, Lentils and dough based extruded products. Depending on regional taste preferences, Namkeen can be coated, highly or lightly seasoned with spices or not seasoned at all, and come individually or in blended into mixtures, like Bombay mix or Khatta Meetha.

Many Namkeen mix legumes are manufactured into flours and used in formulations for low-pressure forming systems. One prominent snack market is the Bhujia market. The number of shapes, sizes and ingredients used are extremely diverse but the basic principle involved in producing the product is the same. Besan (chickpea) Bhujia for example, is mixed with other ingredients and made into a dough or batter that is suitable for extruding. Extrusion technology enables numerous products to be made and includes various types of Bhujia and Boondi.

Growth of Legumes and Namkeen Market

The Global Savoury Snacks market is expected to reach USD 620 billion by 2021, growing at a CAGR of 5.8%. A large part of this is driven by mature markets looking for more diverse options, as innovative flavours remain an important factor for differentiation, with consumers more willing to try new foods that are seen as 'exotic' or 'healthier'.

With a perception from consumers that legume based snacks are a healthier alternative to other snacks due to a higher nutrient content and minimal processing, demand for Namkeen outside of traditional markets like India and South Africa has grown significantly. With decades of experience in snack processing, Heat and Control has observed this trend develop across international markets, as snack food manufacturers increase the use of legumes as a base ingredient for their snack products.

The booming population in the Asia-Pacific region has resulted in a growing middle class with a healthy economic outlook, presenting a significant opportunity for growth of Savoury Snacks market in traditional Namkeen markets like India. The existing experience and technology developed in countries where legumes are the norm, has allowed for the adoption of legume

recipes and processing methods for companies wanting to offer consumers an alternative with minimal research and development.

Legume Flour Bases

Many legumes are manufactured into flours and are used as the basis for formulations that are used in low-pressure forming systems. One prominent snack market is the extrusion, which is popular in India.

The number of shapes, sizes and ingredients that are made are extremely diverse but the basic principles involved in producing this product are quite similar. Gram, soybean and pea flour for example, are mixed with other ingredients to obtain dough / batter suitable for extruding. Extrusion technology enables numerous products to be made such as Bhujia and Boondi.

BHUJIA - is where the Besan flour dough mix is extruded into long straws which are then broken into small pieces after frying. This extremely popular product has many variations for final flavours, shapes and presentations and is a very common ingredient in most Namkeen multi-pack products (Bombay Mix).

BOONDI - is a spherical shaped product made from Besan flour batter, where traditional cooking methods have been to hand-form the balls through a special sieve arrangement into a large batch frying system. Manufacturers now have Extrusion systems to automate this process.

Legume Flavours

With clever formulations and recipes of legume types or dough ingredients the characteristics and flavour of the final product is enhanced. As a result, it isn't necessary to add additional flavouring onto the products after they are fried, further reducing the need for flavourings as the raw product tastes good on its own.

Seasoning is an obvious area where manufacturers can get creative with legume snacks and design endless number of products by adjusting the proportions of the legume, the cooking technique and the flavours added. Seasoning after frying or baking is easily done with standard seasoning application equipment.

NAMKEEN SNACK PROCESSING SYSTEMS

The diversity of snack foods that can be produced using different legumes has long provided a challenge for manufacturers to develop a high quality product with unique flavouring, while having the capability to develop a frying system to cook these products on the same line.

With over 20 years' experience working with the South Asian snack market in Legume and Extrusion processing, Heat and Control have developed a multi-purpose frying system for



■ HEATWAVE® FRYER

food manufacturers to process the raw materials which make up this complex snack product. The flexibility in design of the HeatWave Fryer is critical, as manufacturers want to be able to use a variety of ingredients on the same equipment line. In the case of processing whole legumes, most have a skin (green peas) and can be prone to thermal shock which results in explosion during frying and results in reduced output. This will also increase the amount of fines suspended in the oil. These issues were taken into consideration when the HeatWave® Fryer was developed, resulting in less damage to product during production, reduction in processing time and cost savings through oil use reduction.

The development of the HeatWave Fryer, a specialty snack frying system, which efficiently fries nuts, pellets, Namkeen and other snacks using less oil than conventional fryers. This innovative design cooks snacks using curtains of clean filtered oil, which transfers heat more efficiently than submersion techniques. Oil passes over the product and through the conveyor, quickly carrying fines out of the fryer to produce the highest product quality and cleanest operation of any fryer.

The fryer is essentially a standard, inside belt return HeatWave Frying system, but with the oil outlet at the discharge of the fryer and fitted with an integrated "free float" infeed flume. The infeed options available allow for the handling of extruded noodles, batter coated peanuts, boondi, and various nuts, peas and lentils.

Oil flow and the wiping action of the conveyor belt clean fines from the full width of the pan, while the total system oil volume circulates through a filter within seconds. The HeatWave allows for precise control over the oil temperature,

and complete uniform cooking through the fryer, or the oil flow can be adjusted from individual curtains to create custom heat transfer and cooking profiles. The HeatWave Fryer also offers oil reduction savings, with the lowest usage of oil volume out of any continuous fryer.

This breakthrough design fries a wide range of food products with curtains of clean filtered oil and immediately removes fines to produce the highest product quality and cleanest operation.

THE GLOBAL SAVOURY SNACKS MARKET in 2015 was valued at US\$94.5 billion and is expected to post a value CAGR of 7.9% and per capita value CAGR of 7.1% during 2015–2020. Growth in the global market is expected to come mainly from the developing countries in the Asia-Pacific region followed by the East European regions, while countries in the Latin American region are expected to register marginal growth.

Booming population in Asia-Pacific regions coupled with healthy economic outlook presents a significant opportunity for growth of the Savoury Snacks market. In developed markets (such as the US, the UK and France), novelty is crucial and consumers look for exotic and different flavours in Savoury Snacks while in developing markets (such as Brazil, China and India) novel products as well as value deals remain high in demand.



The Global Savoury Snacks market is highly fragmented with the top 5 brands holding less than 16% of the combined market share. Lay's, Doritos, Pringles, Cheats and Ruffles are the leading brands with the highest market share in 2015. Hypermarkets & Supermarkets is the leading retail channel for Savory Snacks across all regions followed by Convenience Stores. Flexible Packaging is the most commonly used packaging material in the Global Savoury Snacks market accounting for majority of the market share.

The Global Savoury Snacks market is set to grow, driven by increasing urbanisation levels and growing demand from developing countries. Drivers for shift in consumption patterns: Increasing urbanisation and emerging middle income group in the developing countries is driving the Savoury Snacks industry growth.

Despite the regional differences in snacks consumption, innovation in flavours remains an important differentiating factor globally, as consumers across all ages opt for products offering new and unusual consumption experiences.

1. BESAN BHUJIA

Besan flour dough mix is extruded into long straws which are then broken into small pieces after frying. Has many variations for final flavours, shapes and presentations. Is common in most variety products such as Bombay mix.

2. BOONDI

A spherical shaped product made from Besan flour batter, was traditionally hand-formed using a sieve directly into a large batch fryer. Heat and Control has developed extrusion systems to automate this process.

3. MUNG (MOONG) DAL

Moong Dal is a dehusked mung bean that is hydrated, dehydrated, fried, cooled and then packed. It is eaten on its own or mixed with other ingredients.

4. GREEN PEAS

Peas have high protein and carbohydrate content and are eaten as a fried snack on its own or consumed as part of a variety such as Bombay mix.

5. BATTER COATED PEANUTS

Peanuts that are coated with traditional spice flavours mixed with besan flour.

6. FRIED CHICKPEAS

Chickpeas are fried and seasoned and in some recipes the chickpea is flattened. Chickpeas have high protein and low fat and high fibre content.

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BENEFIT FROM OUR GLOBAL EXPERIENCE

HEAT AND CONTROL is a world leading equipment manufacturer of food processing and packaging systems.

Our global team can support you with equipment demonstrations, engineering and applications assistance, project management, installation, training, service and spare parts support wherever your plant is located.

PROCESSING, PACKAGING AND INSPECTION

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With a team of expert engineers and service technicians, we partner with our customers every step of the way, from design, to onsite training, as well as future servicing and maintenance. Our thought leadership within the industry and ability to provide solutions for all steps of the manufacturing process ensures our customers have the highest level of flexibility, investment security, consistency, and success.

