

GOGANI COMPANY

Manufacturer of Pharmaceutical

& Biological Machinery

Bioprocess Solution

Bioprocess Consultation

YEAST

(Processing Systems & Machinery)

Yeast

With some 40 genera and over 500 species, yeast is the best-known and most-investigated microorganism. We can no longer imagine the food, pharmaceutical and cosmetics industries not using fungi. The yeast cell, which measures only 5 to 10 microns, contains a great variety of useful constituents which can be processed further using the separation technology of GOGANI Co. Separator.

Yeast is a living unicellular micro-organism until it is destroyed by heat or other physical or chemical means of about one hundredth of a millimeter in size, and can therefore not be observed with the naked eye. The scientific name for baker's yeast is *saccharomyces cerevisiae*. The latin word "saccharo" means sweet or sugar and "myces" means fungus. There are hundreds of different yeast species, each with their own specific characteristics (e.g. for wine production or for brewing). Yeasts have been used since prehistoric times in the making of breads.



Yeast has three principal functions in dough:

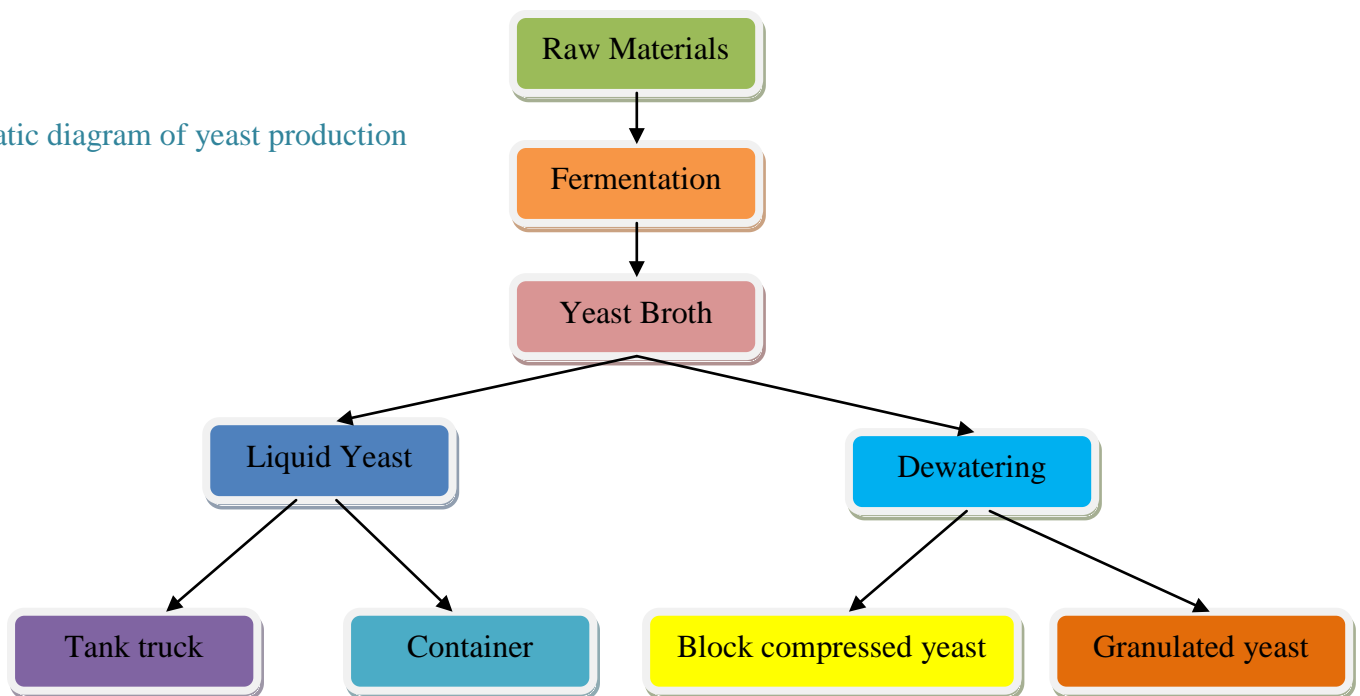
- It produces carbon dioxide gas which raises the dough to the required volume and gives it the light sponge-like texture necessary for the production of baked products with good eating properties. Good eating properties include; crumb softness, short bite, elastic crumb, easy to slice, fine even texture.
- It matures or develops the dough through the action of fermentation on the gluten structure.
- It provides flavour and aroma through the production of complex chemical compounds (organic acids and alcohols), which are by-products of the fermentation process.



The final baker’s yeast product may take the form of liquid yeast, dried yeast cells, or the yeast may be pressed into cakes with some starchy material.

The yeast cells can be lyzed (i.e. disintegrated and perforated) by thermal, mechanical, chemical or enzymatic processes. Nozzle separators from Gogani Co. Separator then separate the extract from the cell walls. In principle, this is a multi-stage process on the counter-current principle. There are no standard solutions, because aspects such as the separability of the product, the requirement for wash water or the yield of extract have to be taken into account on an individual, customer-specific basis.

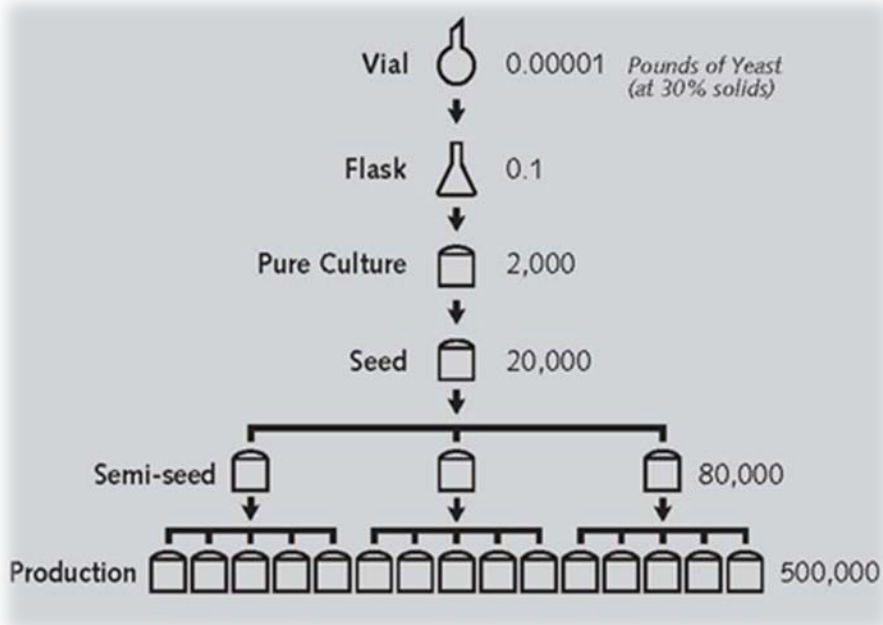
Schematic diagram of yeast production



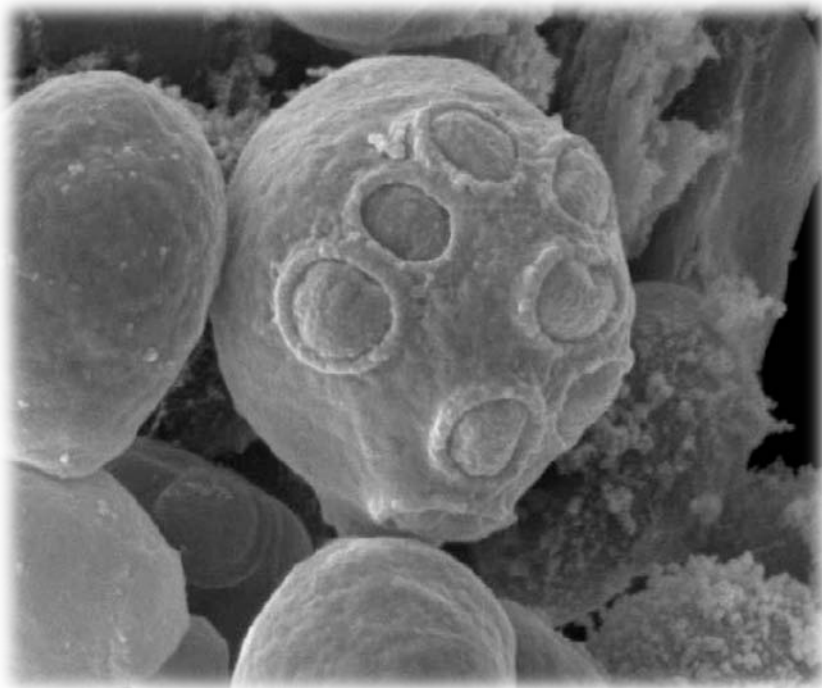
PRODUCTION PROCESS

Raw Materials. Cane or beet molasses is the primary raw material for bakers yeast production. It supplies all the sugar that yeast needs for growth and energy along with part of the needed nitrogen. Before it is fed to the yeast, concentrated molasses is diluted with water, clarified, and heat sterilized. It is then supplemented with additional nitrogen, phosphate, vitamins, and minerals.

Fermentation. Bakers yeast begins as a pure culture of the desired strain, which is inoculated from a small vial into a sterile flask of broth. From the



flask it is transferred into a larger vessel, then through several fermentation stages of increasing volume. The larger-scale fermentations take place in 25,000- to 50,000-gallon fermentors that are equipped for aeration, cooling, incremental molasses feeding, pH control, and anti-foam addition. Each fermentation step requires about a day, so that at the end of a week more than 500,000 pounds can be produced from a single vial.



Processing. Yeast broth from the fermentor at about 5 percent solids is concentrated in a centrifuge to about 18 percent solids and washed with water. Cream yeast is simply this liquid yeast that is cooled and delivered in bulk to the bakery. To make compressed (granular and cake) yeast, cream yeast is passed through a filter, which removes water and increases the solids concentration to about 30 percent. When a

rotary vacuum filter is used, the cream is first treated with salt, then sucked onto a thin layer of starch, rinsed with cold water to remove the salt, and scraped off the starch. After filtering, small amounts of emulsifiers or oils are added to assist in the

extrusion and cutting of the yeast and to improve its appearance. Granular yeast is then crumbled and packed in bags; cake yeast is extruded and formed into blocks.

FINISHED PRODUCT

Composition. Compressed yeast contains about 70 percent water and 30 percent yeast solids. Of the yeast solids, about 50 percent is protein, 40 percent is carbohydrate, and the rest is fat and ash. The solids content can vary from about 27 to 33 percent, depending on how it is filtered. The higher the yeast solids, the higher the activity. The protein level can vary from about 45 to 60 percent and the carbohydrate level from 30 to 45 percent, depending mostly on how fast the yeast is grown. Higher growth rates give higher protein, higher activity, lower carbohydrate, and lower stability. Lower growth rates give lower protein, lower activity, higher carbohydrate, and higher stability.



شرکت گوگانی

تولید کننده ماشین آلات داروسازی و بیولوژیکی

طراحی فرآیندهای بیولوژیکی

مشاوره در امور فرآیندهای بیولوژیکی

مخمر

How to find us?

Iran Office : Iran -Tabriz

Gogani Company, West Tohid Str.,Tabriz -Azarshar high way,

Post Box : 51385-3454 Mr. Farhad Gogani

Tel : +98 914 30 25 323 +98 411 476 65 78

Fax : +98 411 476 65 78

Our Emails :

centraloffice@goganidesign.com

sale@goganidesign.com

info@goganidesign.com





Notes توضیحات



Copy Right of some texts and picture of our catalogues and web site Reserved by their general author from internets and Niro & GEA Westfalia Separator Corporation