

## Industrial Development for Mass Production of A Dietary Supplement Obtained by Topspray Continuous Fluid Bed Agglomeration

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### Introduction

A dietary supplement is a manufactured product supposed to supplement the food regimen when taken through mouth as a pill, tablet, or liquid. A complement can provide nutrients both extracted from food assets or artificial, individually or in aggregate, that allows you to growth the amount in their intake. The elegance of nutrient compounds consists of nutrients, minerals, fibre, fatty acids and amino acids. Dietary supplements also can incorporate materials that have not been confirmed as being critical to life, but are marketed as having a useful biological effect, inclusive of plant pigments or polyphenols. Animals also can be a supply of supplement ingredients, as an instance collagen from chickens or fish. These also are sold individually and in mixture, and may be mixed with nutrient substances. In the United States and Canada, dietary supplements are considered a subset of foods, and are regulated for this reason. The European Commission has additionally established harmonized regulations to help insure that food dietary supplements are secure and nicely classified.

### Abstract

This work describes the industrial development of a new dietary supplement based on the needs of the Colombian people. Actually, in Colombia, some dietary supplements comes in granules traditionally produced by extrusion; this production process leads to product degradation specially in the vitamin content due to high temperatures and high shear. To solve this issue producers overdose the ingredients to overcome the loss generated due to processing conditions that at the end increases the product cost. Therefore, Quala S.A. proposed a top-spray production technology for continuous fluid bed agglomeration, which allows using lower temperatures with lower shear rates for the granulation leading to less impact on the stability of the vitamins and other components as flavors. The variables of greatest relevance in the production of the multivitamin granules were also studied in order to obtain the main characteristics that are useful for the product consumption. As far as we know, this is an innovative technology for the production of dietary supplements and provides good results not only for Quala S.A. but also for the national industry.

Creating an industry predicted to have a 2015 price of \$37 billion, there are greater than 50,000 nutritional supplement products marketed simply within the United States, in which approximately 50% of the American person population

consumes dietary supplements. Multivitamins are the most usually used product. For people who fail to consume a balanced weight-reduction plan, the United States National Institutes of Health states that certain dietary supplements "may also have cost."

In the US, it is in opposition to federal rules for supplement producers to assert that this merchandise prevent or treat any sickness. Companies are allowed to use what's known as "Structure/Function" wording if there may be substantiation of scientific proof for a complement imparting a capacity fitness effect. An instance would be "enables preserve healthy joints", but the label should bear a disclaimer that the Food and Drug Administration (FDA) "has no longer evaluated the declare" and that the nutritional supplement product isn't always intended to "diagnose, deal with, cure or prevent any disease", because simplest a drug can legally make one of these declare. The FDA enforces those regulations and additionally prohibits the sale of supplements and supplement ingredients which can be dangerous, or dietary supplements not made in step with standardized exact production practices. The Dietary Supplement Health and Education Act of 1994 presents this description: "The Dietary Supplement Health and Education Act of 1994 (DSHEA) defines the term "dietary supplement" to mean a product (aside from tobacco) meant to complement the weight loss plan that bears or incorporates one or extra of the following dietary ingredients: a diet, a mineral, an herb or different botanical, an amino acid, a nutritional substance for use by means of guy to supplement the weight loss plan via growing the full nutritional intake, or a concentrate, metabolite, constituent, extract, or aggregate of any of the aforementioned ingredients.

Furthermore, a nutritional supplement have to be categorized as a dietary complement and be intended for ingestion and ought to now not be represented to be used as conventional food or as a sole item of a meal or of the weight loss program. In addition, a nutritional complement cannot be permitted or authorized for investigation as a brand new drug, antibiotic, or biologic, except it became marketed as a food or a nutritional complement earlier than such approval or authorization. Under DSHEA, nutritional supplements are deemed to be meals, besides for purposes of the drug definition.

Nutritional dietary supplements are eaten up orally, and are specifically defined via what they're now not: conventional ingredients (inclusive of meal replacements), scientific ingredients, preservatives or pharmaceutical tablets. Products supposed for use as a nasal spray, or topically, as a lotion carried out to the pores and skin, do now not qualify. FDA-

accepted capsules cannot be elements in dietary supplements. Supplement products are or comprise nutrients, nutritionally vital minerals, amino acids, vital fatty acids and non-nutrient substances extracted from flowers or animals or fungi or microorganism, or in the example of probiotics, are stay microorganism. Dietary complement ingredients can also be synthetic copies of naturally happening materials (example: melatonin). All merchandise with those elements are required to be categorized as dietary supplements. Like ingredients and not like capsules, no government approval is needed to make or sell nutritional dietary supplements; the manufacturer confirms the safety of dietary supplements however the government does not; and rather than requiring chance–gain analysis to prove that the product can be sold like a drug, such assessment is simplest utilized by the FDA to decide that a nutritional supplement is unsafe and ought to be eliminated from market.