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Nutritional gummies – Minerals for a nutritional treat

Market trends

Every year more people are taking food supplements. A most recent consumer survey reports that 75% of adults take food supplements every day.¹ Vitamin/Mineral supplements remain the most popular category among supplement users.

With a majority of adults looking for easy and convenient ways to get their nutrition, alternatives to pill-form supplements pop on the market and gummy supplements have become very popular. As an emerging trend, they continue to drive new consumers to food supplements. Innova reveals that formats like gums made up 5.6% of the supplements in 2018, up from 4% in 2016. This is breathing new life into the market that has been traditionally dominated by tablets and capsules.

The global market for nutritional gummies is expected to further rise at a steady CAGR of 5.2% from 2017 to 2025, meaning that the market will likely become worth US\$ 4.17 bn by 2025 from US\$ 2.68 bn in 2016.²

Gummy supplements – Fun and function

Committing to a healthy lifestyle is much easier said than done. That is why the industry seeks for new delivery forms motivating consumers to take their nutrients. Especially those who do not eat certain foods, struggle to absorb some nutrients, or have increased

nutrient needs. This includes e.g. vegans, seniors, and pregnant women. These groups of people often suffer from deficiency symptoms such as Magnesium, Calcium, Zinc or Iron deficiency. The different deficiencies lead to various symptoms. While people with a shortage of Magnesium and Calcium suffer from cramps, symptoms of Zinc deficiency are hair loss and a higher susceptibility to infection. Iron deficiency in turn leads to fatigue and anaemia.

As Minerals play an important role in the maintenance of health, they are one of the core ingredients for nutritional gummies. They are getting increasingly popular and are a great way to help consumers meet their daily mineral requirements. Because the trendy gummy supplements have both: fun and function. The unique delivery system offers a desirable taste and is easy to chew while providing beneficial nutrients at once. People having difficulties to swallow find the more food-like dosage form as a great alternative to larger, hard-to-swallow pills or capsules.

Formulation innovation – Minerals in nutritional gummies

While gummy supplements are easy to consume, they are not necessarily easy to produce. To deliver effectively on taste and nutrition, technologists need to overcome specific considerations and challenges. Compared to the amount of active nutritional ingredients in a tablet and/or capsule, there is only a limited amount one can add to a gummy matrix. Especially the addition of Minerals to gummy supplements presents several sensory and technological challenges. A good knowledge of the composition of the base gummy, the minerals used in the formulation and other ingredients, including colors and flavors, is necessary to prevent ingredient interactions.

Minerals, depending on being organic or inorganic, can show different reactions within the food matrix. Organic, mostly soluble salts like Citrates or Gluconates, often have an intense taste (bitter, salty, astringent, or sour) and may react with

other ingredients (precipitation of proteins, color change). They are characterized by a low metal content, while inorganic salts, like Carbonates or Oxides, are mostly of high mineral content, bad soluble and often show a neutral but sandy taste profile.

Advanced ingredient technologies, e.g. micronization to reduce the particle size as well as the right choice of the mineral salt are mandatory to overcome flavor challenges in gummy supplements.

A highly advanced micronizing process, which creates extremely fine particles of insoluble salts, can be one way to evolve on overcoming gritty textures. Those Mineral Salts can be suspended in the base to provide a smooth texture in the final product. The extremely fine form of *Ferric Pyrophosphate Ultrafine* (d50 approx. 3 µm) provides a higher surface, which makes it easy to incorporate in the gummy matrix without a sandy mouthfeel or sedimentation. While this innovative product would not influence the taste profile like soluble iron salts, it may even lead to an enhanced intestinal absorption compared to other insoluble iron salts.³

Zinc L-Ascorbate is a fully reacted mineral and a good source of Zinc and vitamin C at the same time. It can be incorporated in dietary gummies without compromising taste. It is one of the latest product innovations by Dr. Paul Lohmann® and designed for high performance applications like nutritional gummies.

Mineral salts like *Calcium Malate* or *Magnesium Malate*, produced by Dr. Paul Lohmann® in Germany, are perfectly suitable for fortification. They have a well-rounded fruity and sour taste profile and even enhance the taste profile of nutritional gummies while the texture stays similar to candy gummies. Beside the fortification, Sodium Hydrogen Malate can be used as acidifier to promote the fresh sour taste.

Most of the minerals have simple structures and are stable. Overdosing is not necessary in nutritional gummies and makes formulations economic and shelf life predictable.



Photo®: Dr. Paul Lohmann®

Gummy supplements with minerals may pose some challenges but definitely offer value to brands who can give their consumers a tastier and more convenient way to get their minerals. Dr. Paul Lohmann® has been obsessed with quality, product design and is dedicated to develop novel solutions for major unmet customer needs. Over the years, the search for better ways for producing and improving mineral salts has resulted in a steady stream of pioneered mineral products.

References

¹<https://www.crnusa.org/CRNConsumerSurvey>

²<https://www.transparencymarketresearch.com/gummy-vitamins-market.html>

³Wegmüller, R. Zimmermann, M.B., Moretti, D., Arnold, M., Langhans, W., Hurrel, R. (2004): Particle Size Reduction and Encapsulation Affect the Bioavailability of Ferric Pyrophosphate in Rats. *J. Nutr.* 134: 3301-3304

For more information, please contact

Dr. Paul Lohmann GmbH & Co. KGaA
Hauptstr. 2
31860 Emmerthal, Germany
sales@lohmann4minerals.com
www.lohmann4minerals.com