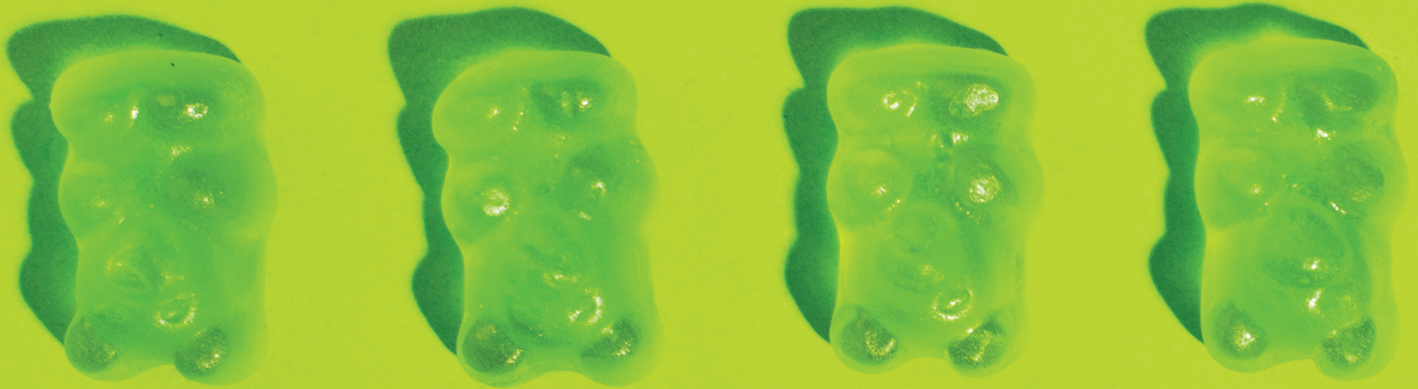


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Where science
& creativity meet



GRINDSTED® Pectin PRM

**Delivering Consistent Quality, Quick Demolding and Perfect Taste
in Gummy Formulations**

Gummies are an ideal option for individuals seeking a convenient and enjoyable way to incorporate dietary supplements. They have enticing aromas, eye-popping colors, a fun texture, and great taste. Additionally, gummies offer health benefits.

In addition to the points mentioned, gummies also:

- Allows for different sizes and shapes to appeal to children and adults
- Different coatings to further differentiate product and appeal to a wider market
- Address difficulties to swallow tablets and can reduce pill fatigue
- Appeal to younger consumers and those newly entering the health supplementation market.

RECENT TRENDS AND INSIGHTS

Consumers' Health and Sustainability Focus

Consumers are increasingly prioritizing personal health and global sustainability when making purchase decisions. They perceive plant-based options as healthier and more environmentally friendly.¹

Global Vegan Supplement Market Growth

The global vegan supplement market is projected to grow at a Compound Annual Growth Rate (CAGR) of 11.3% between 2022 and 2032.²

Rise in Vegan Supplements

Each year, a growing number of vitamin and dietary supplements enter the global market with a vegan claim, experiencing a 5-year CAGR of 24%.³

Gummies - A Rapidly Growing Dosage Form

Gummies are one of the fastest-growing dosage forms in dietary supplements, accounting for 23.4% of US supplement sales in 2022.⁴

Non-Gelatin Gummies

Non-gelatin gummies, especially those made with pectin, are witnessing an average annual growth rate of approximately 48% in the supplement market.³

¹ <https://www.foodingredientsfirst.com/news/innova-market-insights-top-ten-trends-for-2022-health-of-the-planet-overtakes-personal-health-priorities.html>, visited on 2-Feb-2023

² <https://www.futuremarketinsights.com/reports/vegan-supplements-market>, visited on 2-Feb-2023

³ Mintel GNPD, all Vitamins & Dietary Supplements, 2019 – 2023

⁴ Nutrition Business Journal

PECTIN: THE CLEAN-LABEL STABILIZER FOR GUMMIES

Pectin, a natural hydrocolloid derived from plants, plays a crucial role in various food applications providing gelation, viscosity, texture and protein stability. It is a natural hydrocolloid present in plants and is a source of soluble dietary fiber. Let's explore its benefits in gummy applications:



Clean-Label Appeal:

Approved as a food additive in organic products, pectin aligns with clean label claims such as Kosher, Halal, Non-GMO, and vegan.



Flavor Enhancement:

When used in gummies, pectin ensures rapid flavor release, enhancing the overall taste experience.



Teeth-Friendly Texture:

Pectin-based gummies offer a clean-cut appearance, shine, and minimal stickiness to teeth. Say goodbye to chewiness!



Heat Stability:

Pectin remains stable even in warm climates, improving tolerance during manufacturing, transport, and consumption.

As a leading pectin supplier, IFF leverages its expertise to create specialty pectin tailored for diverse applications.

GRINDSTED® PECTIN PRM

Unlocking the potential for high-quality gummies with exceptional clarity, a satisfying bite, and rapid flavor release. Its consistent performance allows for broader processing flexibility, while the unmatched labeling options cater to diverse consumer preferences. Moreover, its increased thermal stability ensures reliability across various production conditions.



High-Quality Gummies



Consistent Performance



Unmatched Labeling Options



Increased Thermal Stability

Pectin Gummies: A Smart Choice for Health-Conscious Consumers

Pectin gummies offer a delightful, convenient, and tasty way for consumers to enjoy their health supplements. But, incorporating dietary supplement ingredients into pectin gummies can pose challenges for manufacturers.

However, these challenges can be overcome by partnering with a premium supplier that possesses an extensive portfolio and in-depth knowledge of pectin. So, why wait? Leverage our expertise in pectin and gummy development, backed by our rich heritage in pharmaceutical and dietary supplement markets. Our global technical support capabilities will help you create differentiated, high-quality gummies that resonate with consumers.

And if you're looking for a sugar-free option, consider our suggested pectin gummy base formulation using GRINDSTED® Pectin PRM.

GRINDSTED® CF 120 PRM	2.20%
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Litesse® Ultra	62.00%
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Xivia® Xylitol	10.00%
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Sodium Citrate	0.50%
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Water	22.90%
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Citric Acid (50% Soln)	1.60%
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GRINDSTED® PECTIN PRM: YOUR SOLUTION FOR GUMMIES

Great gummies require exceptional pectin to achieve uniform, high-clarity gels with excellent flavor release and an indulgent bite. Extracted from sustainably sourced citrus peel, GRINDSTED® Pectin PRM is the natural, flexible choice. Applying our 30 years of experience, we tailor pectin solutions to meet your needs as a dietary supplement manufacturer, to address your formulation needs, processing challenges, and product label requirements.

Why Choose GRINDSTED® Pectin PRM?

- **Easy-to-Use Gelling Agent:** Adapt it seamlessly to your process and formulation.
- **High Stability:** Ensures product quality throughout shelf life, even in warm climates.
- **Global Availability:** GRINDSTED® Pectin PRM is readily accessible worldwide.

Pectin grades available:

Product	Type	Key Benefits
GRINDSTED® Pectin PRM	High Ester (HE)	Excellent clarity, slow setting and broad processing tolerance
	Low Ester- Conventional (LC)	Requires calcium to gel, great for neutral flavored products
	Low Ester- Amidated (LA)	More sensitive to calcium than LC pectin

Our Unmatched Heritage in Regulated Markets

With decades of global experience in regulated markets, including pharmaceuticals and dietary supplements, we stand as a foundation of excellence. Our commitment to quality and adherence to rigorous regulatory standards ensure that your needs are met seamlessly.

Contact Us for Documentation and Certifications

For any specific documentation or certifications you require, please reach out to us at pharma.iff.com. We are here to assist you.

WE VALUE EFFICIENT DEVELOPMENT AND IMPLEMENTATION

We recognize the significance of streamlined development and implementation. Our team of experts accompanies you throughout the journey, providing guidance and solutions tailored to your gummy development needs.



For successful vegan dietary supplement gummy products, the following key considerations concerning the choice of shell-forming materials must be made:

Consider this	Effect	How GRINDSTED® Pectin PRM helps
1 pH impacts setting temperature, setting time and gel strength especially when using HE pectin	pH plays an important role in the establishment of the pectin gel network. Too low of a pH and the network organization is occurring too rapidly to form a cohesive structure, often resulting in collapse, yielding softer textures or no gelation in the final product. Too high of a pH and network establishment is slow to nonexistent, due to inability for the pectin molecules to participate in hydrogen bonding with one another.	Buffered GRINDSTED® Pectin Premium allows better pH control for increased formulation flexibility.
2 Pectin hydration and understanding of pectin in solution is critical.	Can result in gummy batch to batch variations	Connect with our experts for a copy of our hydration guide lines
3 Pectin Standardization- SAG vs. specific parameters such as gel strength and setting temperature	SAG standardization fails to give information about gel strength for many applications. It only gives a defined strength at 65% soluble solids, a pH of 3 and no measurement of setting temperature, which is critical in the quality control of confectionery gummies. Too high of a setting temperature will result in grainy and inconsistent temperatures. SAG standardization also does not show impact of viscosity and molecular weight of pectin which plays a significant role in the pectin's application functionality.	GRINDSTED® Pectin Premium grades are slow-setting high-ester pectins that have been standardized to specific gel strengths and setting temperatures for high solids, low pH application such as gummies. This enables for a broader processing range and increased manufacturing flexibility without sacrificing quality.
4 Interaction with minerals	Divalent cations presented in the gummy system can drastically increase viscosity and increase setting temperature requirements, depositing below the new setting temperature requirement will result in pre-gelation.	GRINDSTED® Pectin Premium has low sensitivity to divalent cations which reduces viscosity and setting temperature increases which reduces pre-gelation.

Partnering with our Pectin Experts: Your Path to Successful Vegan Gummies

When you collaborate with our team of pectin experts, you tap into our wealth of experience, unparalleled application knowledge, and gummy development capabilities. Rest assured; you won't miss a beat on your journey toward creating exceptional vegan gummies.

FOR OVER 30 YEARS, WE OFFER TAILORED PECTIN SOLUTIONS GLOBALLY

Leading gummy manufacturers and brands worldwide have reaped the benefits of GRINDSTED® Pectin PRM, along with the expertise of our application development and innovation teams. Our commitment to developing unique and high-quality gummies sets us apart.

Our team of scientists stands ready to create customer-specific solutions, addressing your formulation and processing needs. Whether it's texture, setting temperature, pH, or any other challenge, we'll optimize and develop both existing and new formulations. Additionally, our analytical capabilities provide scientific backing and measurable parameters to support scale-up manufacturing.

Connect with us to discuss your pectin gummy requirements and achieve a swift time to market.



UNLOCKING SUCCESS WITH PECTIN GUMMIES: A THREE-STEP APPROACH

We offer a comprehensive approach to ensure the success of your pectin gummies. Benefit from our expertise, unmatched application knowledge, and development capabilities.

- Firstly, we engage in detailed discussions to understand your unique gummy formulation requirements and any challenges you may face during production. We provide valuable insights and tips to optimize your process.
- Secondly, our team of experts tailors advice and in-lab support specifically for your existing or in-development formulations. Whether it's texture, setting temperature, pH, or any other aspect, we're here to assist.
- Lastly, we emphasize GRINDSTED® Pectin PRM, a key ingredient for high-quality gummies. With careful raw material selection and our extensive experience, this pectin offers greater formulation and processing flexibility.

Connect with us to create exceptional pectin gummies that stand out in the market!



Benefit from our gummy and experience, unmatched application expertise, and development capabilities that ensure success of your pectin gummies. Here is the simple three step approach:

1

Discuss your specific gummy formulation requirements, challenges and production process before starting your project for tips and trick.

2

Provide tailored advice and in lab support on existing or in development formulation-specifics, processing or technical issues.

3

Always at your service –collaborate in person either at your facilities or ours!

GRINDSTED® Pectin PRM is key to meeting consumer demand for high quality gummy supplement products with a premium taste, texture and appearance. Through IFF's experience and careful raw material selection, GRINDSTED® Pectin PRM was designed with manufacturers in mind, providing greater formulation and processing flexibility.





Pioneering Innovative Dosage Forms

We are dedicated to creating groundbreaking solutions for cutting-edge dosage forms and product concepts. Our mission is to empower your business's success through innovation.

Explore GRINDSTED® Pectin PRM and Beyond

To learn more about GRINDSTED® Pectin PRM or explore other innovative dosage form technologies, visit pharma.iff.com

Scan QR Code to follow us on LinkedIn to stay updated on the latest advancements and industry insights.



pharma.iff.com

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