"GREEN" VEGAN CONFECTIONERY FOR ALL

Expand your target group and save cost by choosing a 100% vegan solution







How to Produce Vegan Confectionery

Research shows that the demand for vegan confectionery is on the rise around the world. Globalization and migration are strong drivers behind this increasing trend as well as the growing awareness of consumers for health, animal welfare and sustainability. The challenge for the food industry is to embed this trend in their production processes so they can meet the needs this growing group of customers. Why not produce your confectionery without any gelatin? When doing so your confectionery is Kosher and Halal certified and ready to serve multiple target groups and markets.

Traditionally many varieties of confectioneries (gummies, foamed jellies and multi-layered candy) contain animal based gelatin. This ingredient can easily be replaced by a 100% vegan and sustainable solution without making any sacrifices in taste or texture.

Avebe is dedicated to developing sustainable solutions for its customers and adapting these concepts to local market needs. This white paper provides a solution for producing vegan confectionery for all.

Confectionery Going Green a Challenge for the Industry

Studies show (Figure 1) that the availability of vegan food is increasingly important in the modern world. 3.5% of all new confectionery products in 2015 made vegan claims, up from just 1% between 2010 and 2013. This figure has already risen to more than 4% in the Q3 of 2016.

Looking at these figures we can conclude that the market for vegan confectionery is growing rapidly. In line with these growing needs, new vegan solutions must be introduced.

Launches of Vegan Confectionery, 2010-2016

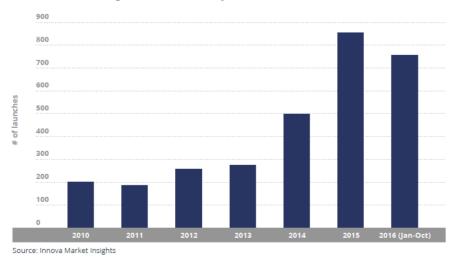


Figure 1: Launches of Vegan Confectionery, 2010-2016, Source Innova Market Insights







Green State of the Art Solution



Now what would be the easiest way to make this change from non-vegan to vegan confectionery? Replacing the non-vegan ingredient(s) with a 100% vegan solution would be the simplest fix, right?

Avebe has created a 100% green & plant-based solution made from potato starch and potato protein named Perfectasol™. This potato-derived ingredient for confectionery products is a versatile ingredient for (foamed) confectionery. This ingredient is able to mimic the texturing functionality of gelatin, both foaming and gelling, and produce great-tasting animal-free (vegan) confectionery.

To give you an idea of what a typical process and recipe may look like, Avebe shares the typical recipe for gummies.

Example gummies recipe

Ingredients	Reference	
Perfectasol™		10.0
Gelatin (200 Bloom)	7	
Water	22	22
Sugar	34.8	33.3
Glucose Syrup DE42	34.8	33.3
Citric Acid (50%)	1.5	1.5
Color/Flavor	a.d.	a.d.

About Perfectasol™

Popular confectionery relies heavily on its taste and texture. Perfectasol $^{\text{\tiny{IM}}}$ overcomes this challenge by delivering vegan confectionery with great taste and texture.

PerfectasolTM can be used to produce a wide variety of textures, from elastic to very short and from gummy to aerated. Equally or even more important, tasting studies have shown that there were no differences between taste and texture when using PerfectasolTM versus using conventional, animal based gelatin.



Perfectasol[™] C is easy to use: it is a one-component solution, giving both foaming and gelling, based on existing processing technology such as extrusion or depositing, requiring only minor adjustments. It offers high versatility in terms of texture and aeration (0.25-1.0 gr/ml). It is salt- and pH-stable, making e.g. foamed liquorice possible (gelatin does not foam in a salty system).

Another benefit of using starch based ingredients is the stability during storage. It shows less/no crystallization of the sugar. Regular animal based gelatin gummies start to melt at a temperature above 113°F while starch based gummies stay stable up till 140°F (Figure 2). This means Perfectasol™ will increase stability of your products, as an added benefit.

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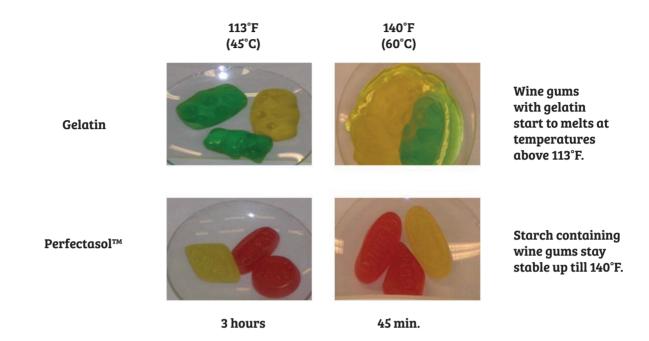


Figure 2 Heat stability of starch / gelatin containing gummies tested at 113 $^{\circ}$ F and 140 $^{\circ}$ F during 16 hours.

Cost-in-use Benefits

Switching from conventional animal based gelatin to Perfect sol $^{\text{\tiny{IM}}}$ is fairly easy and has substantial cost-in-use benefits.

In most cases the current machinery and production process can stay in place so no (or little) investments need to be made. Additionally, the cost-in-use of Perfectasol $^{\text{\tiny M}}$ are lower than the price of animal based gelatin.

Finally and most importantly, because your customer target group can expand by using Perfectasol $^{\text{IM}}$ instead of animal-based gelatin, your market share may enlarge.

Advantages of using Perfectasol™

- Animal-free (vegan)
- · Wide variety of textures possible
- Suitable for allergen-free claims
- Non-GMO
- · Kosher & Halal-certified
- · Cost-in-use benefits possible
- Improved stability during storage



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Contact us

Contact Avebe for detailed cost calculations, recipes and/or processes, or any other questions you may have. Many recipes and production processes of local product varieties are available to you. Contact us directly at info@avebe.com or find your local sales contact here: www.avebe.com/contacts.

About Avebe

Avebe is a cooperation of 2,500 growers of starch potatoes in the Netherlands and Germany. Each year, the starch potatoes of the members are processed into high-grade ingredients based on potato starch and potato protein; they add value to food products worldwide. Avebe works continuously on developing new opportunities and applications based on starch potatoes and is focused on sustainable continuity. The company has over 1,300 employees and production sites in the Netherlands, Germany and Sweden and sales offices in the USA, Europe, Asia and the Middle East. The Head Office is located in Veendam, the Netherlands. Avebe is a trade name of Coöperatie AVEBE U.A., with its registered office in Veendam (Chamber of Commerce No: 0230084).



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