

Confectionery Starches with excellent Properties

Vegan Gums and Vegan Chews: safety and healthy

A new potato-starch based product is developed for the moulded confectionery products. This starch makes it possible to produce confectionery products with an elastic texture, excellent clarity and long shelf-life, without using another gelling agent. Besides the moulded confectionery this producer of starches also started to focus on the pulled confectionery (chews). Research has started one and half year ago and resulted in a new range of starches. These new starches belong to the PerfectaGel Chew range. These starches offer manufacturers the opportunity to develop export markets where culture, religion or climate ask for gelatin free product concepts.



Starches are widely used in the food-industry for several decennia. The food-industry is a huge area. In this segment producers make frequently use of binding, thickening, texturing and/or gelling agents. With this agents products are ment like: pectin, gelatin, gum arabic, agar-agar, hydrocolloids and starches. Each product is unique and has therefore its own specific properties. In this range of products, the hydrocolloids and starches have a special place. Starches and hydrocolloids can namely be modified. They can be modified in such a way to match your demand.

STARCHES IN GENERAL

The traditional native potato starch consists of two compenents: amylopectin (80 %) and amylose (20 %). These two components have specific properties, because of their difference in structure.

Amylopectin shows a lot of similarity with gum arabic, while the behaviour of amylose can be compared with gelatin, pectin and agar-agar. Amylopectin is more or less the stable part of starch and amylose is the gelling part of starch.

By several technologies, starch producers are able to modify the native starch in such a way that the modified starch fulfill the demand of the food-producer.

These different modifications and combinations of modifications results in an enormous number of starches. Avebe can serve you with almost 100 different starches for the food industry.

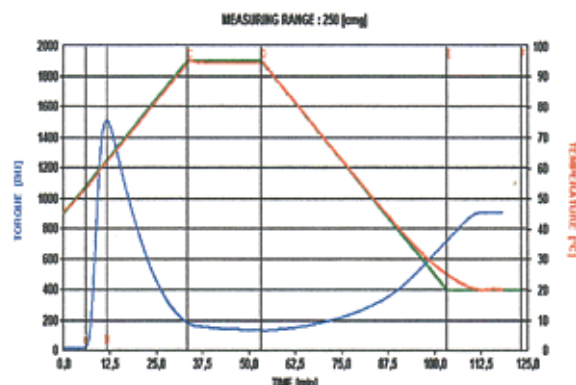
STARCH: AN ALTERNATIVE TO GELATIN

Since several years Avebe is focussed on a specific segment of the confectionery indu-

stry: moulded confectionery. To this segment belong: wine-gums, jellies, fruitgums and liquorice products.

One of our goals in this segment is the development of an alternative for gelatin or the development of recipes based on starch only, matching the texture and elasticity of a wine-gum.

Gelatin in this segment is used as a gelling agent. Four years ago PerfectaGel MPT was developed and announced as Avebe's best gelatin alternative for the moulded confectionery. From this point we continued our research which resulted in PerfectaGel 928. With these two products (as is or combinations of both) mainly all textures in the confectionery are covered.



Brabender-viscosity of PerfectaGel 928

Since these products are commercial available the company started to broaden their activities in the confectionery world and focussed on another segment as well. This segment is the pulling confectionery, to which „Kaubonbon“s or Chews belong. Also here our goal was to develop a starch which can be used as a gelatin alternative, to give

to the confectionery industry a starch to produce a vegetarian chew. Gelatin is used in this segment as a texturizer.

Therefore completely different starches must be used in this segment.

MOULDED CONFECTIONERY

A new potato-starch based product is developed for the moulded confectionery products. This starch, PerfectaGel 928, makes it possible to produce confectionery products with an elastic texture, excellent clarity and long shelf-life, without using another gelling agent. The elasticity of the moulded products, based on this starch is almost similar to the typical wine-gum texture (combination

of starch and gelatin). PerfectaGel 928 creates a perfect network with the water and keeps the water inside this network, which results in a long shelf-life. Products made four years ago are still elastic and clear.

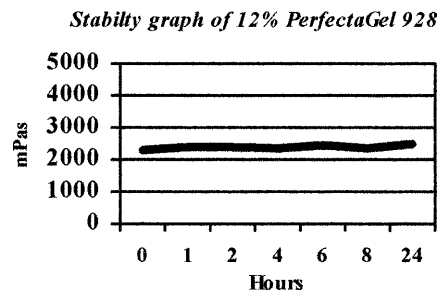
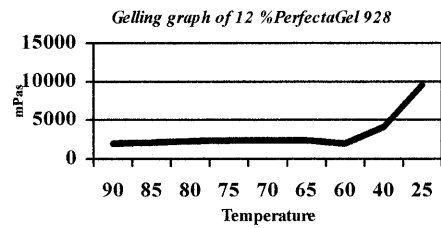
The properties of PerfectaGel 928 can be undeniable be described as unique. In general a product will be achieved with a very short texture when using a traditional starch in the confectionery. Traditional starches are acid hydrolyzed or oxydized starches. Wine Gums based on a

traditional starch do not only result in a short bite texture but also in bad clarity.

Both properties due to the retrogradation of the starch.

This is also the reason why since all the years wine-gums were based on combinations of starch and gelatin. Gelatin was added to create a more elastic texture. Since the development of PerfectaGel 928 is this not necessary anymore.

In comparison with PerfectaGel MPT is PerfectaGel 928 much more stable. A cooked confectionery solution based on PerfectaGel 928 can even be moulded after 8 hours when kept in a buffer tank at 80 °C.



In general it can be said that a wine-gum consists of a combination of starch and gelatin. These two gelling agent can be replaced by PerfectaGel 928 in the same ratio.



Starch / Gelatin Starch

Starch	8	–
Gelatin	6	–
PerfectaGel 928	–	14
Glucose-syrup DE 42	33	33
Sugar	33	33
Water	20	20

By replacing the starch/gelatin combination by PerfectaGel 928 a gelatin free wine-gum is produced which excellent fits in the demand of the vegetarian world. Besides this opportunity also the cost-price of this recipe will be lower, which has to be seen as a benefit. Recipes based on PerfectaGel 928 can be treated in the same way as a wine-gum recipe with the same process-conditions.

PULLED CONFECTIONERY

Chews are produced by a combined process of cooking, cooling, pulling and forming. Mainly all the chews are based on sugar, glucose-syrup, vegetable fat and gelatin. Fat and gelatin must both be seen as a texturing agent. Next to this is the fat responsible for

the melting behaviour in the mouth. Because of the enormous different in quality of chews Avebe developed three different starches for this segment of the confectionery industry.

Trials were carried out with several other ingredients suppliers with satisfying results. Nevertheless we will continue to improve the recipes or the starches. PerfectaGel Chew 03 is comparable with Gelatin 150 bloom. The other two starches PerfectaGel Chew 01 and PerfectaGel Chew 02 have to be compared with a lower bloom gelstrength gelatin.

Recipe for Fruit chews

PerfectaGel Chew	1 - 2 %
Sugar	37 - 40 %
Glucose-syrup DE 42	37 - 40 %
Vegetable fat	4 - 6 %
Water	14 - 20 %



Chew production at ZDS, Solingen

In our opinion we introduced with PerfectaGel 928 and the PerfectaGel Chew range such interesting starches which can be seen as an useful addition to the long list of starches and hydrocolloids for the confectionery industry.