Aerated Sugar Confectionery

The challenge is to get air into the confectionery item and keep it there for the whole shelf life of the product.

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Examples of aerated sugar confectionery products can be found worldwide. Aeration levels and textures vary strongly.

There are nougat masses in a lot of candy bars. *Three Musketeers*, *Mars* bar, *Milky Way* and the *Nuts* bar are well-known examples. More traditional European versions are the Turrón and Montélimar types originating from the south of Europe.

Beside the elastic *Campfire* marshmallows, a grained, starch-deposited, often banana-shaped version of marshmallows can be found. In eastern Europe and Russia, agar-based, shorter-textured forms are marketed.

Chews can be found in a variety of aeration levels. Air bubbles also act as seeding agents promoting fine sugar crystallization.

The most delicate product is called an angel kiss. It is egg albumen-based, highly aerated foam with a limited shelf life of only a couple of weeks.

AERATION BACKGROUND

Why do we aerate sugar confectionery products? Having more product for the same price is not the only reason. By adding air a softer product is obtained, optimizing melting behavior and thus flavor release. Finally, the item becomes lighter in color.

Utilizing high-intensity mixing, also called *beating*, air is mixed with water. The formed air bubbles are gone in a second, so they have to be stabilized with an aerating agent, also known as a *surfactant* (a surface active agent). A range of aerating agents like hydrolyzed proteins, intact proteins and saponin are available to the confectioner. Water with sugar and syrup dissolved in it is the continuous phase in a sugar confection. Air bubbles are dispersed in it. We like to have an uninterrupted homogeneous layer of surfactant covering these air bubbles. Uniformity of this layer promotes foam stability (Figure 1). As soon as there is competition, with multiple products going to this air-water interface, the foam becomes less stable. Droplets of fat or bitter tones (terpenes) from oranges are famous for ruining foam.

AERATING AGENTS

All aerating agents have to be dissolved to become active.

Intact Proteins

Egg albumen and gelatin are the main agents in this category.

The dissolved protein, for instance, egg albumen, in the upper part of Figure 2, still

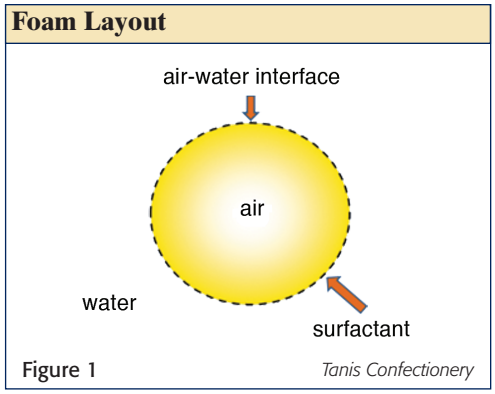


Figure 1 *Tanis Confectionery*



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