Shelf Life of Confectionery Products

In order to predict shelf life, several parameters are needed, including storage conditions and the quality level that signals the end of shelf life for the consumer.

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When a consumer opens a candy package, he or she expects to find a piece of candy that provides a delectable eating experience. If instead the consumer finds a product that has gone bad, both consumer and manufacturer are unhappy. The shelf-life paradigm is to bring a product from production to the consumer at the highest eating (and nutritional) quality.

However, nature works against the confectioner in that all candies are prone to change over time due to the forces acting upon them. There are numerous ways that candy can go bad, depending on the initial state of the candy and the environmental conditions. In this review we will cover various aspects of shelf life as related to confections.

SHELF-LIFE DATING

Another way to express the shelf-life paradigm is that the goal should be to minimize the number of consumers you are willing to displease with a product that is no longer acceptable to eat. This requires an understanding of what quality level is still acceptable at the end of shelf life. That is, how much degradation of the product can occur before too many consumers consider it no longer acceptable. This leads to use of open dating to alert the consumer as to when the product is either unsafe to consume or likely to no longer have sufficient quality.

Open-dating practices vary widely. Some typical expressions for shelf-life dating in the food industry follow:

- Date with no explanation (a code)
- Packed on (or frozen on)
- Ship by (when there are sensitive ingredients for processors)
- Sell by
- Use by
- Use or freeze by
- Best if purchased by
- Better or best if used by

Choice of an open-dating practice, when not specifically required by government regulation, is based on corporate preference and, to some extent, on which of the above formats works best for the product.

Even though the confectionery industry in the United States is not required to use open dating, many products do indeed have some type of open dating. An informal survey of the marketplace showed that about 50 percent of the confectionery products sampled had some sort of date, with the majority preferring the best before open-dating format. Most dates found on packages were 9 to 12 months from date of purchase or longer, indicative of the long shelf life of most confections.

Determining the proper date to be used in open dating may often be done simply based on commercial experience. However, more formalized approaches are available that allow quantitative determination of the end-use date.

DESIGNING AND CONDUCTING SHELF-LIFE STUDIES

In general, shelf-life studies involve evalu-