

Chemical Additives - Why They Are Included In Food

by Sally Bair
Farm Feature Writer

Are you reading more and more labels on the foods you purchase and understanding them less?

Thanks to the advent of mandatory nutritional labeling on food products, homemakers are becoming much more aware of the contents of the boxes and cans they purchase in the supermarket. However, this new awareness may lead to confusion as they read the strange-sounding chemical names of substances known as food additives.

According to William Knightly, Development Associate, ICI America, Inc., the lack of correct information about these additives adds to consumers' fears about just what purpose they serve. He said there are those who like to spread the belief that additives are included for the primary purpose of making food appear to be better than it is, that is, to deceive the public. However, he said, "Deceptive purposes are expressly forbidden by law, and every chemical in food must have a functional effect."

So just what are these additives and why are they used? Knightly, speaking recently to the Pennsylvania Home Economics Association's annual meeting, said that many additives are naturally occurring, but when added to food must be labeled with their chemical names by law. Therefore, Vitamin C, if added to a product, must be listed and is often called ascorbic acid which may confuse an uninformed consumer. He added further that many additives are used to keep a product in the condition that most homemakers in this country have come to rely on. Sometimes processing removes natural nutrients, and they then must be added and labeled as an additive.

An additive, according to the definition of the National Research Council, is "a substance or mixture of substances other than a basic foodstuff, which is present in a food as a result of any aspect of production, processing,

storage or packaging."

According to Knightly, there are two kinds of additives under that definition: intentional additives, those which are added deliberately, and incidental additives, those which are present in foods in trace quantities as a result of some phase of production, processing, storage or packaging. At this point, Knightly is careful to say, "Salt and spices are the oldest additives known to man."

Knightly noted that the use of additives is an outgrowth of long established food handling practices. He said eggs were the first emulsifiers, and explained that British sailors were the first to find that the use of limes in their daily diets prevented scurvy - hence they became known as "limeys." This was probably the beginning of fortification of diets with vitamins.

Where do these food additives come from? Some come from natural sources. One such natural additive is annatto, a naturally-occurring yellow dye.

Other additives are manufactured. But even many of these are found naturally in food. Vitamins and minerals added to improve nutritive value are found naturally in foods, but are often manufactured because they are cheaper and more available. They are also more concentrated and freer of objectionable impurities.

The fact that these additives are called chemical additives may make them sound objectionable or unnatural, but, actually, all additives, whether natural or man-made are chemical, as is every substance in the world. But because the names sound foreign to most consumers not trained in chemicals, they are sometimes unduly frightened at the prospect of all these names, Knightly said.

As an example, the chemical breakdown of an apple would show that it contains 33 identified alcohols, 23 identified aldehydes and ketones, 16 acids and 62 esters, plus other substances. Thinking of it from that standpoint doesn't sound too appetizing, but we all know how delicious a big juicy apple can be.

To help you understand why food additives are used, listed below are some of the primary reasons they are found in foods you buy.

1. To impart and maintain desired consistency. Emulsifiers improve texture, homogeneity and quality, and make it possible for salad dressings to remain on the shelf in a desirable state. Stabilizers and thickeners give smooth uniform texture and flavor and desired consistency. This keeps ice cream and chocolate milk in their desired state. These additives may be listed as lecithin,

gum arabic and methyl cellulose, to name a few.

2. To improve nutritive value. Certain additives have been used in products over the years to eliminate and prevent certain diseases involving malnutrition. For instance, iodized salt has eliminated simple goiter, while Vitamin D in milk and infant foods has practically eliminated rickets.

3. To enhance flavor - If additives such as clovers, ginger and benzaldehyde were not used, we could never have spice cake, gingerbread, sausage and flavored gelatins.

4. To control acidity or alkalinity. The acidity or alkalinity of a food often affects the flavor, texture and cooking results. Potassium acid tartrate, tartaric acid, sodium bicarbonate, citric acid and lactic acid are used in such things as cakes, cookies, butter, process cheese, chocolates and soft drinks.

5. To maintain appearance, palatability and wholesomeness. - Food spoilage caused by mold, bacteria and yeast is prevented or slowed by certain additives. Antioxidants are used to keep fats from turning rancid and certain fresh fruits from darkening when cut and exposed to air during processing. Propionic acid, ascorbic acid, and butylated hydroxyanisole are a few of these additives and they are used in such foods as bread, cheese, fruit juices, margarine, lard, potato chips and others.

6. To give desired and characteristic color. Sometimes it is necessary to correct objectional natural variations in foods to increase acceptability and attractiveness. All color additives were placed under one law in 1960; they include such colors as annatto, carotene, cochineal, chlorophyll and are found in bakery goods, jams and jellies and soft drinks.

7. To mature and bleach. This is especially important in flour milling and bread baking. Freshly-milled wheat flour has a yellowish color and lacks good baking qualities. Aging flour used to be the only way to make it acceptable, Knightly said, but now it is possible to use oxidizing agents to do the job of whitening and modifying the gluten. Chlorine dioxide, chlorine, potassium borate and iodate are used in wheat flour and certain cheeses.

8. There are a variety of other functions which additives serve. For example, humectants are used to retain moisture in some foods and anticaking agents keep others free-flowing. Curing agents are used to preserve certain meats and firming agents may be used to improve the texture of processed fruits and vegetables.

Many of the additives listed above have difficult names. As Knightly put it, "Monosodium glutamate is horrendous



William Knightly, development associate, ICI America, Inc., discusses the use of additives in food at the annual meeting of the Pennsylvania Home Economics Association.

sounding," but it is simply something that is naturally occurring and is used to intensify flavors in certain food products such as soup.

Knightly placed some of the blame on frightening consumers on the communications media, which, in his opinion, has publicized certain things out of context. "Many fallacies," he said, "are disseminated by nutritional quacks and individuals who have no credentials." Cereals, he mentioned, are currently coming under attack for being less than nutritious. However, he pointed out, "Milk with cereal makes a very nutritious breakfast. The problem of balancing diets is an old problem."

Incidental additives include those which find their way into food through pesticides, fertilizers and feed adjuvants as well as packaging materials. He said that cessation of the use of pesticides would result in "mass starvation and a high cost of food."

Knightly said the most important consideration in the safety of food additives is in the "safe levels of use. Even common table salt can be toxic if taken in large amounts." He said, "Additives must benefit the consumer."

Knightly pointed out, in answer to a question, that the amounts of additives given to test animals is massive in comparison to what is considered normal intake for humans. And, according to FDA regulations regarding additive, the quantity may not exceed the amount reasonably necessary to accomplish its intended function. In fact, a margin of 100 to 1 is applied to the quantity of the additive found to be harmless to test animals to minimize any possible hazards to human consumers.

He also pointed out that if just one person raises serious doubt about the safety of any additive, FDA immediately pulls that product from the market, and then proceeds to test it to see if the product is indeed harmful. Many people remember when cyclamates were pulled from the market because they were considered unsafe. After years of research, they will soon be allowed back on the market.

Knightly took a look into the future and said, "The cost



Cheryl Reitz, assistant extension home economist in Lebanon County, looks over one of the handouts with William Knightly.

of food must rise dramatically in the future." He said that our method of feeding animals grain is a "very inefficient and very expensive" way of producing food. He said, "A lot of protein is used up in growing the animal."

He also said that despite the current criticism of our food supply, that it is overpriced and lacking in nourishment, Americans still spend just 17 percent of their disposable income on food. By comparison, Europeans spend 40 percent, Russians, 60 percent; and Indians and Africans, 90 percent.

If you have additional questions about additives you find in your food supply contact the Food and Drug Administration, Washington, D.C.

You may not like the sound of some of the names you read on the labels, but those additives are serving a purpose and keeping the food in a state which helps you find it acceptable.

Country Corner

with: Melissa Piper
ASSOCIATE EDITOR

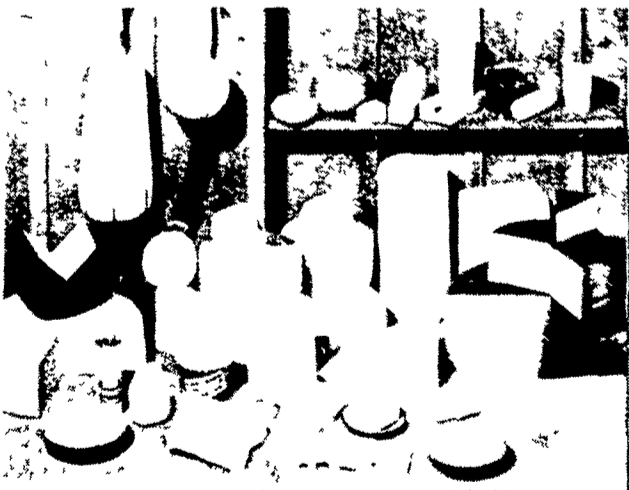
"Say Cheese, Please!"

Despite the many food fads which are currently sweeping the country, it seems as if Americans are still eating a great percentage of the traditional dairy foods such as cheese and butter. In fact the United Dairy Industry Association recently announced that the consumer demand for cheese and butter will increase in 1975

Last year Americans consumed 14½ pounds of cheese per person which was a one percent increase over the previous year. In fact the cheese consumption in this country has soared over 75 percent since 1953

Why is cheese so popular? Some answers have been formulated by the Dairy Industry Association - here's what they say

- The rising cost of meat has caused consumers to use more cheese as an alternative source of protein



- Cheese is frequently used as an ingredient, in other recipes

- The popularity of exotic food using cheese has also raised the consumption

- And of course last but certainly not least - the popularity of pizza has stimulated the use of several cheese types

Cheddar cheese still ranks top as the nation's favorite with Colby close behind in second place. American cheese used in many processed foods is also a favorite

We'd like to hear from more of our readers in the future - so if you have an idea or farm tip that you'd like to share, please send it to Country Corner in care of Lancaster Farming, Box 266, Lititz, PA

Have a nice week!