United States Department of Agriculture
Food Safety and Inspection Service

Food Safety Information

USDA Photo

Egg Products and Food Safety

Of the 76.2 billion eggs consumed in 2009, 30 percent were in the form of egg products (eggs removed from their shells). Liquid, frozen, and dried egg products are widely used by the foodservice industry and as ingredients in other foods, such as prepared mayonnaise and ice cream.

What Are Egg Products?

The term "egg products" refers to eggs that are removed from their shells for processing at facilities called "breaker plants." The processing of egg products includes breaking eggs, filtering, mixing, stabilizing, blending, pasteurizing, cooling, freezing or drying, and packaging. This is done at United States Department of Agriculture (USDA)-inspected plants.

Basic egg products include whole eggs, whites, yolks, and various blends—with or without non-egg ingredients—that are processed and pasteurized.

Are Egg Products New?

Egg products are not new. Commercial egg drying began in St. Louis, Missouri, about 1880. The first commercial production of frozen whole eggs began in 1903; separated eggs, in 1912. 1951 saw the first commercial egg breaking machines. No-cholesterol refrigerated or frozen egg substitutes first became available to consumers in 1973. They consist of egg whites, artificial color, and other non-egg additives. Specific questions about egg substitutes should be directed to the manufacturer or to the Food and Drug Administration (FDA).

Who Inspects Egg Products?

Congress passed the Egg Products Inspection Act (EPIA) in 1970. The EPIA provides for the mandatory continuous inspection of the processing of liquid, frozen, and dried egg products. From 1970 to 1995 the Poultry Division of USDA's Agricultural Marketing Service inspected egg products to ensure they were wholesome, otherwise not adulterated, and properly labeled and packaged to protect the health and welfare of consumers.

In 1995, the Food Safety and Inspection Service (FSIS) became responsible for the inspection of egg products. FSIS inspects all egg products, with and without added ingredients, with the exception of those products exempted under the Act. Officially inspected egg products will bear the USDA inspection mark.

The Department of Health and Human Services' FDA is responsible for the inspection of egg substitutes, imitation eggs, and similar products which are exempted from continuous inspection under the EPIA.

The Food Safety and Inspection Service (FSIS) is the public health agency in the U.S. Department of Agriculture responsible for ensuring that the nation's commercial supply of meat, poultry, and egg products is safe, wholesome, and correctly labeled and packaged.

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USDA Meat & Poultry Hotline
1-888-MPHotline
(1-888-674-6854)

Are All Egg Products from the U.S.?

Currently, Canada is the only active exporter of egg products to the United States. The EPIA specifies that egg products may not be imported into the United States except from countries which have an egg products inspection system equivalent to that in this country.

Why Are Egg Products Useful?

Egg products are used widely by the foodservice industry and the commercial food industry. They are scrambled or made into omelets or used as ingredients in egg dishes or other foods such as mayonnaise or ice cream. Food manufacturers use pasteurized egg products because of their convenience and ease in handling and storing. Because egg products are pasteurized, institutional foodservice operators, such as fast food chains, restaurants, hospitals, and nursing homes, use egg products to ensure a high level of food safety. Some egg products are sold in retail food stores.

How Are Egg Products Made?

Egg products are processed in sanitary facilities under continuous inspection by the USDA. Shell eggs are processed into egg products by automated equipment that removes the shell eggs from flats, washes and sanitizes the shells, breaks the eggs and separates the whites and yolks. The liquid egg product is filtered, may be mixed with other ingredients, and is then chilled prior to additional processing. The resulting egg products liquid then receives a lethality treatment such as pasteurization or is heated in the dried form.

Why and How Are Egg Products Pasteurized?

Egg products are pasteurized. The 1970 Egg Products Inspection Act (EPIA) requires that all egg products distributed for consumption be pasteurized. This means that they must be rapidly heated and held at a minimum required temperature for a specified time. This destroys *Salmonella*, but it does not cook the eggs or affect their color, flavor, nutritional value, or use. Dried egg whites are pasteurized by heating in the dried form, again for a specified time and at a minimum required temperature.

Since many new and different types of egg products are now being formulated, government and industry are currently evaluating the effectiveness of the pasteurization processes used for these and other products. Additional research will determine if supplemental or different safety measures are warranted to continue to provide safe egg products for foodservice, industry, and consumers.

Are All Egg Products Pasteurized?

Certain commodities are not presently considered egg products and are exempt from this law. These commodities, which are under the jurisdiction of the FDA, include freeze-dried products, imitation egg products, and egg substitutes. Inspected and passed, pasteurized egg products are used to make these commodities, and companies may elect to re-pasteurize these products following formulation and before packaging.

Can Egg Products Be Used As An Ingredient In Uncooked Foods?

Egg products can be used in baking or cooking (scrambled eggs, for example). They are pasteurized but are best used in a cooked product, especially if served to high-risk persons, that is, infants and young children, pregnant women and their unborn babies, older adults, and people with weakened immune systems (such as those with HIV/AIDS, cancer, diabetes, kidney disease, and transplant patients). Use a food thermometer to be sure that the internal temperature of the cooked product reaches 160 °F.

Egg products can be substituted in recipes typically made with raw eggs that won't be cooked (for example, Caesar salad, Hollandaise sauce, eggnog, homemade mayonnaise, ice cream, and key lime pie). The USDA

does not recommend eating raw shell eggs that are not cooked or are undercooked due to the possibility that *Salmonella* bacteria may be present. undercooked due to the possibility that *Salmonella* bacteria may be present.

Buying Tips for Egg Products

Buy only pasteurized egg products that bear the USDA inspection mark. Make sure containers are tightly sealed. Frozen products should show no signs of thawing. Refrigerated products should be kept at 40 °F or below. Dried egg products should not be caked or hardened.

What is Dried Egg Mix?

USDA Dried Egg Mix is a blend of dried whole eggs, nonfat dry milk, soybean oil, and a small amount of salt. There is very little moisture in it. To reconstitute, blend 2 tablespoons of Dried Egg Mix with ¼ cup water to make the equivalent of one large whole egg.

Dried Egg Mix is packaged in 6-ounce pouches, equivalent to about 6 eggs each. It is distributed by USDA to food banks, Indian reservations, and other needy family outlets, and is also used in disaster feeding (for hurricane and flood victims, for example). Dried egg mix was initially developed for the military during the 1930's.

A similar product called All Purpose Egg Mix, containing a greater proportion of eggs, is now being manufactured for USDA. It is reconstituted by mixing one part egg mix with two parts water (by weight). All Purpose Egg Mix is available to schools as part of the School Lunch Program and is packaged in 10-pound bags.

Safe Handling and Storage of Egg Products

Safe handling and storage is necessary for all egg products to prevent bacterial contamination. Here are recommendations from USDA:

- For best quality, store frozen egg products up to one year. Check to be sure your freezer is set at 0 °F or lower. After thawing, do not refreeze.
- Thaw frozen egg products in the refrigerator or under cold running water. DO NOT THAW ON THE COUNTER.
- If the container for liquid products bears a "use-by" date, observe it. Follow the storage and handling instructions provided by the manufacturer.
- For liquid products without an expiration date, store unopened containers at 40 °F or below for up to 7 days (not to exceed 3 days after opening). Do not freeze opened cartons of liquid egg products.
- Unopened dried egg products and egg white solids can be stored at room temperature as long as they are kept cool and dry. After opening, store in the refrigerator.
- Reconstituted egg products should be used immediately or refrigerated and used that day.
- USDA Commodity Dried Egg Mix should be stored at less than 50 °F, preferably in the refrigerator (at 40 °F or below). After opening, use within 7 to 10 days. Reconstitute only the amount needed at one time. Use reconstituted egg mix immediately or refrigerate and use within 1 hour.

Nutrition of Egg Products

Eggs are considered one of nature's most complete foods. With the implementation of the Nutrition Labeling and Education Act in 1994, egg products sold at retail are also required to bear nutrition labeling. The "Nutrition Facts" panel will tell you the nutrient composition of that specific product per serving and its contribution to your overall diet.

Labels on Egg Products

In addition to nutrition information on consumer packages, other labeling information is required for egg products. All egg products must be labeled with:

- the common or usual name of the egg product. If the egg product is comprised of two or more ingredients, the ingredients are listed in descending order of predominance;
- the name and address of the packer or distributor;
- the date of pack which may be shown as a lot number or production code number;
- the net contents;
- the official USDA inspection mark and establishment number.

Food Safety Questions?

Call the USDA Meat & Poultry Hotline

If you have a question about meat, poultry, or egg products, call the USDA Meat and Poultry Hotline toll free at **1-888-MPHotline (1-888-674-6854)** The hotline is open year-round

Monday through Friday from 10 a.m. to 4 p.m. ET (English or Spanish). Recorded food safety messages are available 24 hours a day. Check out the FSIS Web site at **www.fsis.usda.gov**.

Send E-mail questions to **MPHotline.fsis@usda.gov**.

Ask Karen!

FSIS' automated response system can provide food safety information 24/7 and a live chat during Hotline hours.

AskKaren.gov

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