

Eggs, Dried

Revised 2008

Thermal Properties

	Whole (dried)		White (dried)	
	English	Metric	English	Metric
Moisture, %	3.10	--	14.62	--
Protein, %	47.35	--	76.92	--
Fat, %	40.95	--	0.04	--
Carbohydrate, %	4.95	--	4.17	--
Fiber, %	0.0	--	0.0	--
Ash, %	3.65	--	4.25	--
Specific Heat Above Freezing	0.49 Btu/lb*°F	2.04 kJ/(kg*K)	0.55 Btu/lb*°F	2.29 kJ/(kg*K)
Specific Heat Below Freezing	0.48 Btu/lb*°F	2.00 kJ/(kg*K)	0.50 Btu/lb*°F	2.10 kJ/(kg*K)
Latent Heat of Fusion	4 Btu/lb	10 kJ/kg	21 Btu/lb	49 kJ/kg

Storage Conditions

	Egg White Solids, Dried	Whole Egg and Yolk Solids, for Routine Storage	Dried, for Color and Nutrient Retention
Temperature	70-80°F (21-27°C)	40-50°F (4-10°C)	32 to 0°F (0 to -18°C)
Relative Humidity	75% or less	75% or less	
Storage Period	Indefinite	1-2 years	3 months-1 year

Egg White Solids:

Egg white solids are produced from deglucosed liquid egg albumen. The glucose is removed by either an enzymatic or fermentation process. Both pan dried, commonly called “flake”, and spray dried, commonly called “powder” are available. When packed in moisture vapor resistant containers, these products have an indefinite shelf life when stored under ordinary room temperature conditions. Refrigerated storage is not recommended. Moisture may condense on the cold product when it is removed from refrigeration. Keep containers tightly sealed - this prevents contamination and allows tampering to be detected.

Whole Egg and Yolk Solids:

Whole egg and yolk solids are produced from both natural (non-deglucosed) and deglucosed liquid whole egg or yolk products. The glucose is mostly removed by an enzymatic process. These products are produced by spray-drying. The composition of these products varies. They may be whole egg, yolk only, blends of whole egg or yolk with carbohydrates (sugar, corn syrup), or whole egg or yolk to which free-

flow agents have been added to improve flavor, function, and/or physical texture. When packed with inert gas, hermetically sealed and stored at 40-50°F (4.4-10°C), a shelf life of 1-2 years or perhaps more can be expected. Lower storage temperatures can be used to extend shelf life. However, some products tend to cake if free-flow agents have not been added. Keep containers tightly sealed, since this prevents contamination and allows tampering to be detected.

Storage for Color and Nutrient Retention:

Whole eggs or yolk solids used for processing frequently require the rich deep yellow orange color provided by corn, alfalfa, or other feeds high in carotenoids. Seventy-five percent of the color can be retained for 3 months at 32°F (0°C) and for 1 year or longer at 0°F (-18°C).

Some of the carotenoid pigments are Vitamin A precursors. A 2 oz. portion of dehydrated whole eggs should provide nearly half the daily dietary allowance of Vitamins A, B1, B2, protein, iron, and smaller quantities of many other nutrients. Adequate nutrient protection can be provided for 3 months at 40-50°F (4.4-10°C) and for 1 year at temperatures less than 32°F (0°C).

Storage of Unpasteurized or Salmonella Positive Egg Products in Commercial Warehouse Pending Further Processing:

The United States Department of Agriculture (USDA) Egg Products Grading Branch, Agricultural Marketing Service (AMS), has some special procedures to be followed when unpasteurized or salmonella positive egg products are brought into the commercial warehouse. Generally speaking, the egg product must eventually be returned to either the same firm or sent to an approved USDA plant for further processing. The commercial warehouse receipt must provide the following information for the benefit of the USDA and plant management:

1. Warehouse receipt number
2. Name and address of warehouse
3. Warehouse lot number under which product is stored
4. Type of product, number of containers, and net weight
5. Name and address of the firm for which product is stored

Packaging:

Dried eggs for foodservice use or government or military purchases may be packed in plastic pouches (6-oz.), #10 cans, or 3-lb. and 25-lb. poly packs. Commercial/industrial use packs are 25-lb. and 50-lb. boxes, or 150, 175, and 200-lb. drums. All packaging must be a positive moisture barrier. A moisture proof, odor proof, packaging is preferred.

Odor Transfer:

Dried egg products are susceptible to absorbing foreign odors. They should not be stored with other products that give off strong odors, such as apples or onions.

Certification Requirements:

From time to time, a resident USDA Grader may be asked to certify that a particular lot of dried egg products have been analyzed using laboratory analyses, such as those appropriate to determine or measure

salmonella, standard plate count, coliforms, moisture, color or salt. If so, a sample each lot should be collected as follows:

Number of Shipping Containers in Lot	Number of Shipping Containers to Select for Sampling	Quantity to be Analyzed
50 or less	4	(1) 100 grams
51-150	8	(2) 100 grams
151-500	12	(3) 100 grams
501-1,500	16	(4) 100 grams
over 1,500	20	(5) 100 grams

Containers are to be randomly selected from the lot and placed in groups of four. The grader will remove approximately 2 to 3 ounces of product from each of the four containers and combine them into one sample container for laboratory analysis. Although this procedure is for the official USDA Grading test, a warehouse operator can use the same procedure as a guideline should one of his customers request similar services.

WFLO is indebted to Dr. W. J. Stadelman, Professor Emeritus, Purdue University, Lafayette, Indiana, and Dr. Paul Dawson, Clemson University, Clemson, South Carolina, for the review and revision of this topic.