



## TUBE FOODS | DoD CFD

### PURPOSE:

Tube foods are often referred to as high-altitude rations, or “foods with altitude.” The purpose of tube food is to feed U2 pilots in the U.S. Air Force (USAF) during reconnaissance missions that last for periods up to 12 hours. Due to the flying height of U2 jets during such missions, pilots must wear pressurized suits and helmets that cannot be removed, making it impossible for them to consume food with their hands or utensils. Instead, tube food is designed to attach directly to a feeding tube that extends from the outside of the helmet to the inside where the pilot is able to sip the food from a straw-like tube.



The Combat Feeding Directorate is the sole supplier of tube foods to the USAF and has unique facilities and food processing equipment to produce a wide variety of these highly specialized, unique products. All tube foods provided to the USAF meet strict requirements for percentages of fat, protein, and carbohydrates while being flavorful and easy to consume and digest. These requirements result in a product that provides sustenance sufficient enough to enable pilots to perform exhausting physical and cognitive duties for periods up to 12 hours.



### CHARACTERISTICS:

Each tube contains approximately 4.75-5.0 ounces (134-141 grams) of product and has a shelf life of 3 years at 80°F (27°C) and 6 months at 100°F (38°C). Menu varieties consist of the following:

- **Entrées:** Beef & Gravy, Beef Stew, Sloppy Joe, Chicken a la King, Vegetarian, Manhattan Clam Chowder
- **Fruits:** Applesauce, Peaches, Pears
- **Puddings & Desserts:** Butterscotch, Toffee, Caramel, Chocolate, Apple Pie, Cherry Dessert, Caffeinated Chocolate Pudding



### NUTRITIONAL DATA:

Each tube provides 150-300 calories.

### PREPARATION REQUIREMENTS:

All tube foods are ready to eat. The individual pilot simply removes the cap to the tube food and connects it to the feeding tube in his/her helmet.

### COMMENTS:

The Air Force is interested in enhancing tube foods with nutritional supplements for increased endurance and optimal performance during extended or long mission objectives, as well as to provide additional short-term energy, which is particularly critical when landing an aircraft. Caffeinated Chocolate Pudding was successfully introduced in 2004 to enhance U2 Pilots’ cognitive response and reduce fatigue and stress. Ongoing research and development is evaluating other methods of enhancing tube foods with specific amino acid/tyrosine additives, nutrient supplementation and carbohydrate/electrolyte products.



### POINT OF CONTACT:

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