

Meats, Ground, Comminuted and Restructured

Revised 2018

Storage Conditions

Chilled	28-30°F (-2.2 to -1.1°C)
Frozen	0 to -10°F (-17.7 to -23.3°C)

Ground, comminuted and/or restructured meats are highly perishable food commodities, which, unless appropriately stored, will rapidly deteriorate from growth of microorganisms and loss of flavor and/or color. In addition, industry has developed ground, comminuted and restructured meat items that are marketed for both the retail and the institutional markets. The two major hindrances to marketing these products have been rapid discoloration and flavor loss. Both color and flavor deterioration continues as storage continues. Lipid oxidation is one of the major causes of deterioration in the quality of ground, comminuted and restructured meat products, particularly during frozen storage. Oxidative deterioration of the lipids directly affects color, flavor, texture, nutritive value, and safety. The term "warmed-over flavor" (WOF) is used to describe the rapid onset of rancidity in cooked meat during refrigerated storage. Oxidized flavors are readily detected after 24 hours, in contrast to the more slowly developing rancidity that becomes evident after prolonged freezer storage. Vacuum and modified atmosphere packaging (MAP) along with the use of antioxidants and polyphosphates in some products during the manufacturing process have provided significant storage quality benefits. Storage recommendations are based on fresh (never frozen) lean components.

A somewhat unique form of comminuted meat that is available for further processing is fat-reduced beef (FRB) and fat-reduced pork (FRP). The lean is separated from fat in high-fat, fresh trimmings to produce a meat ingredient that is functionally and organoleptically comparable to the traditional lean meat trimmings used in processed meats. This product typically contains no more than 10% fat and can be used at any level to produce low-fat processed meat products such as Hamburger patties, hot dogs, sausage, luncheon meats, canned products such as chili, and pizza toppings.

There is no universal data on the shelf life of these reduced fat products at present. It is appropriate to follow the freezer storage specifications provided by the manufacturer.

A large number of ground, comminuted and restructured meat products already exist in a variety of formats; therefore, good manufacturing guidelines will be given by product type. Storage life for specific products has also been included.

1. **Raw Chilled:** (Bone-in or boneless, sectioned and formed.) These products are chilled to 28°F (-2.2°C) and held at this temperature at all times. The restructured products should be held at 28-30°F (-2.2 to -1.1°C) and certainly no greater than 34°F (1.1°C). Shelf life of 21-30 days is expected.
2. **Raw Frozen:** (Bone-in or boneless, sectioned and formed.) These products are blast frozen within 8 hours of fabrication and held at -10°F (-23.3°C). Storage life of 6 months is normal and up to 1 year is acceptable.
3. **Pre-Cooked Chilled:** (Bone-in or boneless, sectioned and formed, chunked formed.) This group of products will vary considerably in storage life. It is recommended that they be held at 30-32°F (-1.1 to 0°C). Uncured items will last 60 days and cured items 90-180 days. The concern for the cook-in products is survival and germination of spore formers in the pasteurized environment. It is recommended that cook-in products be held no higher than 32°F (0°C).
4. **Pre-Cooked Frozen:** (Bone-in or boneless, sectioned and formed, chunked and formed.) These products should be blast-frozen within 24 hours of heat processing. Recommendations are -10°F (-23.3°C) for holding and storage. Storage life depends mostly on packaging and retardation of rancidity. Typical storage life is 6 months, with 12 months for some products under ideal conditions.

Chilled Storage at 28-30°F (-2.2 to -1.1°C)	
	Storage Period in Days
Ground Beef Patties	7
Chub Pack Ground Beef	15
Turkey Ham (Chunked and Formed)	60
Beef Roast (Chunked and Formed)	60
“Sizzlelean” (restructured breakfast strips)	90
Raw Chicken Breast	45
Breast of Turkey	90
Turkey Ham	60
Turkey Salami	50
Turkey Franks	60
Pork Roast Pre-Cooked	60
Turkey Breast	90

Frozen Storage at 0°F (-18°C)	
	Maximum Storage Period in Months
Beef, Ground Patties, IQF	6
Beef, Whole Muscle, Marinated, Breaded, Par Cooked, IQF	9

Beef, Seasoned Finely, Ground	3
Beef, Steaks	9
Beef, Roasts	6
Beef, Corned	9
Beef, Pastrami	9
Pork Roast Pre-Cooked	6
Turkey Breast	9
Beef, Roll-Ups	6
Beef, "Trailmaster" Steak	6
Beef, Cube Steak	6
Beef, Patties	6
Beef, Breaded Cubed	6
Beef, Steak Peppered	6
Beef, Steak Fingers	6
Beef, Biscuit Steak	6
Beef, Flavored Cubed	6
Beef, Fritters	6
Beef, Luncheon Steak	6
Beef, Salisbury Steak	6
Beef, Portions	6
Chicken, Nugget	6
Chicken, Pattie	6
Chicken, Fillet Raw	4
Chicken, Roll, Fully Cooked	3
Chicken, Breast	9
Chicken, Cutlet	9
Turkey, Roll Fully Cooked	3
Turkey, Ground	2
Turkey, Breast	9
Pork, "Choppette"	6
Pork, Roll-Ups	6
Pork, Steak Floured	6
Pork, Ham	9
Veal, Steak Breaded	6
Veal, Steak Parmesan	6
Veal, Patties	6

Veal, Chopped Steak	6
Veal, Roll-Ups	6
Veal, Portions	6

Thawing

When thawing ground, comminuted or restructured meat items, care should be taken to avoid long-term exposure to warm temperatures. It is recommended that all products be thawed at less than 40°F (4.4°C) using less than 1,082 ft/min (5.5 m/sec) air velocity and 85% relative humidity when 24 hours or more are needed to thaw the product. Short-term thawing will reduce potential bacterial growth. The meat surface temperature should not rise above 40°F (4.4°C) for a period greater than 10 hours during thawing.

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