

# Ham, Cured

Revised 2018

## Thermal Properties

	Cured, Whole, Lean		Country Cured, Lean	
	English	Metric	English	Metric
Moisture, %	68.26	--	55.93	--
Protein, %	22.32	--	27.80	--
Fat, %	5.71	--	8.32	--
Carbohydrate, %	0.05	--	0.30	--
Fiber, %	0.0	--	0.0	--
Ash, %	3.66	--	7.65	--
Specific Heat Above Freezing	--	--	0.75 Btu/lb*°F	3.16 kJ/(kg*K)
Specific Heat Below Freezing	--	--	0.55 Btu/lb*°F	2.31 kJ/(kg*K)
Latent Heat of Fusion	98 Btu/lb	228 kJ/kg	80 Btu/lb	187 kJ/kg

## Storage Conditions

	Ham >20.5% PFF*	Ham with Natural Juices 18.5-20.5% PFF*	Ham, Water Added 17-18.5% PFF*	Ham and Water Product <17% PFF*
<b>Chilled</b>				
Temperature	28°F (-2.2°C)	28°F (-2.2°C)	28°F (-2.2°C)	28°F (-2.2°C)
Storage Period	3 months	3 months	2 months	2 months
<b>Frozen</b>				
Temperature	0°F (-18°C) or less	0°F (-18°C) or less	0°F (-18°C) or less	0°F (-18°C) or less
Storage Period	3 months	3 months	2 months	2 months

\* Protein Fat Free

## Classification of Hams

Label	Product Description
Ham	Complies with USDA Meat and Poultry Inspection regulations for ham, including requirement to be >20.5% protein fat-free (PFF)
Ham, with natural juices	Complies with regulations for product so labeled, including requirement to be 18.5-20.5% protein fat-free (PFF)

Ham, water added	Complies with regulations for product so labeled, including requirement to be 17-18.5% protein fat-free (PFF)
Ham and water product	Complies with regulations for product so labeled, including requirement to be <17% protein fat-free (PFF)

### Freezing

Ham to be frozen should reach 0°F (-18°C) or lower within 72 hours after the lot has been received. Temperatures should be recorded in at least 3 randomly selected cartons from the lot or delivery unit. After thawing, hams should not exhibit lean which has a coarse or open, porous texture.

### Thawing

The thawing process, which may take several days, may be accomplished by any method desired by the processor. Thawing in an air-circulating room, like blast freezing, is considered better than thawing in water. Water thawing permits cross contamination and large amounts of waste water. DO NOT expose ham directly to hot water. Drip losses are directly related to thaw rate. Slow thawing will cause a smaller amount of moisture loss than fast thawing.

### Storage

Smoke-cured, fully-cooked ham in cans or in casing (deli type) is generally not frozen and should be stored at 26°F (-3.3°C). This type of ham when frozen may shatter upon slicing. The texture of the ham will be loose, similar to a sponge. Ham with the largest amount of water will generally possess the shortest shelf life.

Some of the high-moisture, smoke-cured, fully-cooked hams with water content of 80% or more will reach the warehouse to be frozen and stored in vacuum packages for peak sale usage. You are urged to obtain written instructions from the processor for freezing rate, storing temperature, and tempering methods. Water-added ham of this type is often processed well ahead of the busy season, such as Easter or Christmas. When this is done, the request is generally to have the ham frozen and later tempered. Conservatively, these hams can be expected to remain acceptable for 60-90 days in frozen storage and remain wholesome for another 30 days at the retail level when packaged under vacuum.

See **Meats, Frozen** for information on pallets, palletizing, and freezing speed.

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WFLO is indebted to Dr. Joe Sebranek, Iowa State University, and Dr. Stephen Neel, World Food Logistics Organization, for review and revision of this topic.