



*Cheese
Reference
Guide*

Beatrice Cheese, Inc.

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BEATRICE CHEESE, INC.

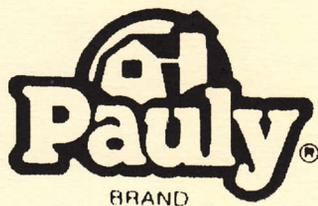
The heritage of Pauly Cheese dates back to 1878 when, from the kitchens of Lucy Pauly emerged the technology which makes Beatrice Cheese one of the oldest cheesemakers in Wisconsin.

Factories mushroomed throughout the state when all seven Pauly boys became involved in the family cheese business. This was the start of the well known Pauly brand of processed cheese and various cheese foods.

Swift & Co. bought out Pauly Cheese in 1953, then Beatrice Cheese came into the picture in 1985 with the purchase of Swift. Beatrice Corporate, at that time had also owned Meinerz Creamery, Alum Rock and County Line, thus consolidating and bringing much expertise to create what is today called Beatrice Cheese, Inc.

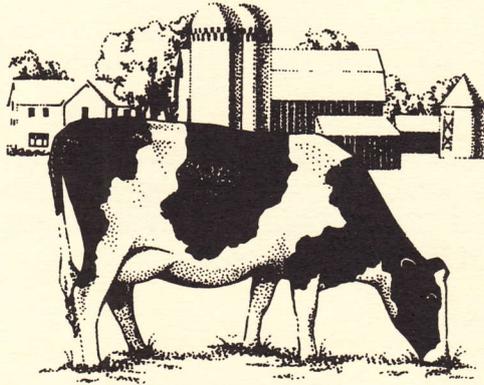
Beatrice Cheese, Inc. supplies:

- o A full line of cheese and aerosol products
- o National distribution
- o National sales force
- o 13 company-owned USDA approved plants:
 - Allentown, PA
 - Auburn, IN
 - Atlanta, GA
 - Faribault, MN
 - Fredericksburg, IA
 - Gustine, CA
 - Holland, MI
 - Secaucus, NJ
 - Marshfield, WI
 - Mayville, WI
 - Preston, IA
 - Seymour, WI
 - Waukesha, WI
- o Technical assistance
- o 37 quality checks for complete product consistency
- o Made-to-order products to insure freshness
- o Marketing/Sales staff to assist you in product selection and product knowledge
- o Pauly brand named products which are proven leaders in quality and performance
 - o 3 Divisions: Industrial, Retail, Food Service
 - o 750 million dollars in sales



The Art of Cheesemaking

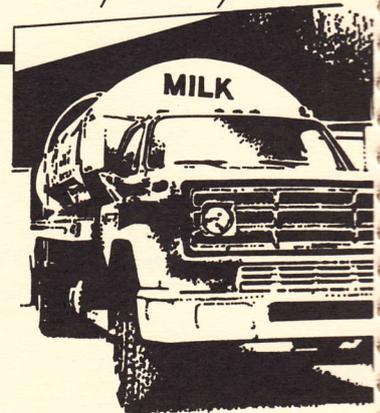
Cheesemaking is an art and a significant part of Wisconsin's dairy heritage. Though the many varieties of Wisconsin cheese differ in their characteristics and taste, they all have one thing in common—the famous milk from America's Dairyland. That's why Wisconsin cheese has The Taste Worth Looking For.



Quality begins here! An exquisite by-product of milk, cheese has spread Wisconsin's dairy fame to the world.

Steps In Chee

I Milk Intake



High quality milk from 39,000 Wisconsin farms is delivered daily to cheese plants all the state.

IV Starter Culture



Starter culture is added to assist in curdling the milk and determines flavor and texture of the cheese.

V Coagulant



A milk-clotting enzyme is added to coagulate the milk, forming a custard-like mass.

VI Cutting



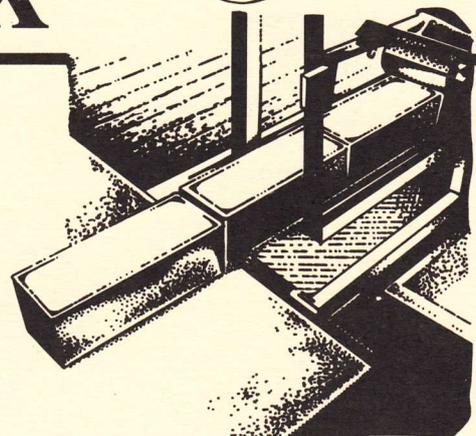
Cutting begins the process of separating the liquid (whey) from the curds.

IX Curd Transformation



Different manipulation techniques and salting effect how the curds are transformed into the many cheese varieties made in Wisconsin.

X Pressing



Pressing determines the characteristic shape and helps complete the curd formation.

XI

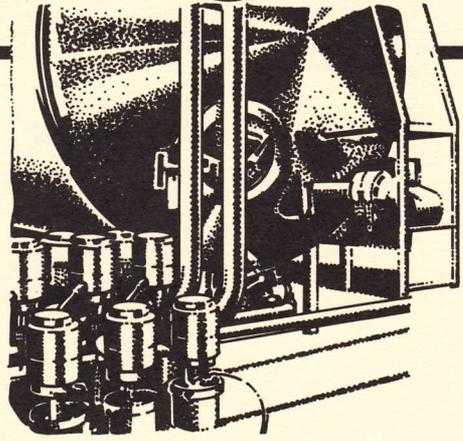
Cheesemaking

II Testing



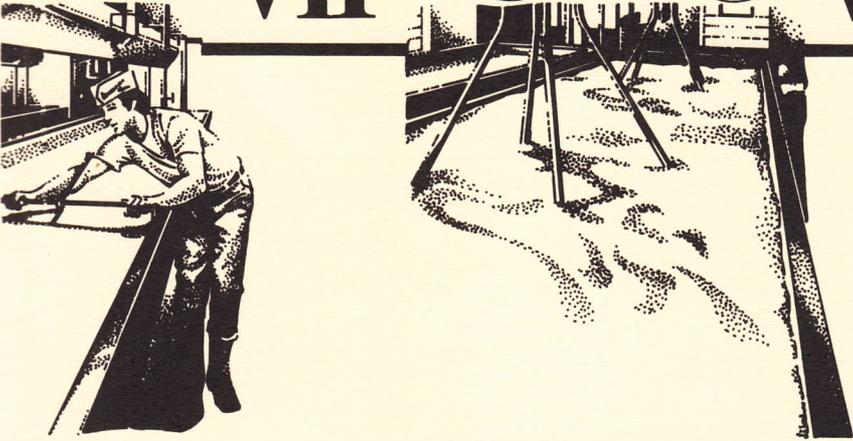
All cheese plants constantly screen incoming milk samples for quality and purity.

III Standardization



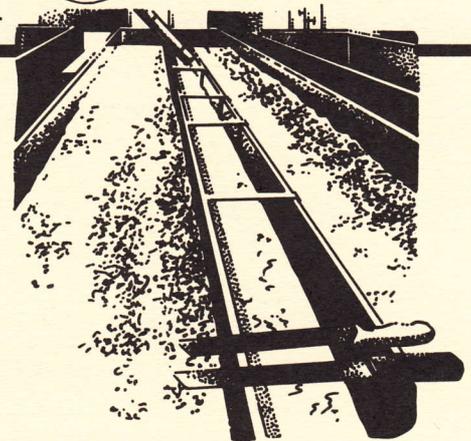
The milk is weighed, heat treated or pasteurized for product safety and uniformity.

VII Stirring & Heating



Process of separating the milk solids (curd).

VIII Whey Drained

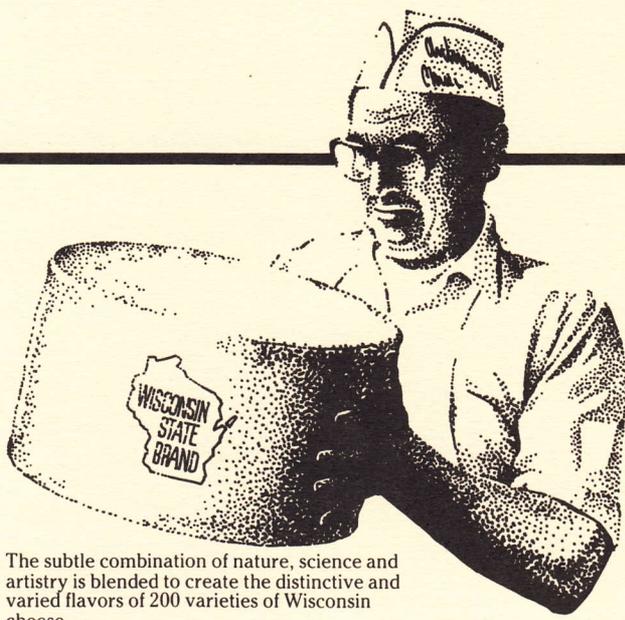


Whey remains after the curd is tightly formed. This by-product is drained for further treatment.

Curing



The cheese is then moved to a humidity and temperature controlled room to allow the cheese to fully develop.



The subtle combination of nature, science and artistry is blended to create the distinctive and varied flavors of 200 varieties of Wisconsin cheese.

NUTRITIONAL INFORMATION

Serving Size = 1 ounce		CALORIES	PROTEIN (grams)	CARBOHYDRATE (grams)	FAT (grams)	SODIUM (milligrams)	POTASSIUM (milligrams)	PROTEIN %	VITAMIN A %	VITAMIN C %	THIAMINE %	RIBOFLAVIN %	NIACIN %	CALCIUM %	IRON %	MOISTURE MAXIMUM %	FAT MINIMUM %	
4	Low Moisture - Whole Milk Mozzarella	90	6	1	7	150	21	20	4	*	*	4	*	20	*	50	45	
	Low Moisture - Part Skim Mozzarella	80	8	1	5	150	27	20	4	*	*	4	*	20	*	50	35	
	Provolone	100	7	1	8	200	40	15	2	*	*	6	*	15	*	45	45	
	Cheddar	110	7	1	9	170	28	20	6	*	*	6	*	20	*	39	50	
	Colby	110	7	1	9	170	36	15	4	*	*	6	*	20	*	40	50	
	Monterey Jack	110	7	1	9	150	23	16	5	*	*	6	*	15	*	42	50	
	Colby Jack	110	7	1	9	150	23	15	4	*	*	6	*	17	*	42	50	
	Pepper Jack	110	7	1	9	150	24	16	5	*	*	6	*	15	*	42	50	
	Swiss	110	8	1	8	75	31	15	4	*	*	4	*	25	*	41	42	
	Blue Cheese	100	6	1	6	375	25	15	6	*	*	8	*	15	*	46	50	
	Brick	100	6	1	6	160	40	15	6	*	*	6	*	20	*	44	50	
	Muenster	100	7	1	8	170	38	15	6	*	*	6	*	20	*	46	50	
	Cream Cheese	100	2	1	10	85	34	4	4	*	*	2	*	2	*	55	33	
	Neufchatel	75	3	1	7	100	32	4	6	*	*	2	*	2	*	63	20	
	Grade A Sour Cream	35	1	1	3	6	17	2	4	*	*	2	*	4	*	74	18	
	Low Sodium/Low Fat Cheddar	70	10	1	3	10												
	Low Sodium/Low Fat Mozzarella	60	10	1	2	10												
	Low Sodium/Low Fat Swiss	75	9	1	4	40												
	Process American	110	6	1	9	400	15	10	10	4	*	*	6	*	*	40	50	
	Process Cheese Food	90	6	1	7	300	15	10	10	4	*	*	6	*	*	44	41	
Process Cheese Spread	80	5	2	6	400	60	10	10	10	*	*	6	*	20	*	52	22	
Substitute Cheddar	80	6	1	6	500	25	15	15	6	*	*	8	*	20	*	39	50	
Substitute Mozzarella	80	6	2	6	400	2	15	15	6	*	*	10	*	20	*	48	40	
Substitute American & Swiss	80	6	1	6	300	2	15	15	6	*	*	20	*	20	*	48	40	

* Contains less than 2% I.I.S. RDA

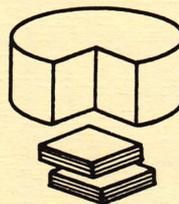
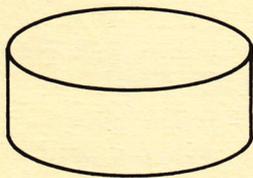
Common Cheese Styles

Most Common Maker Styles

Most Common Packaged Styles

MAMMOTH

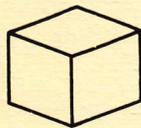
(Cheddar sold to order)
25-900 Lbs.



Full Wheels — hand sliced at retail

BLOCK

(Cheddar, Monterey Jack, Swiss, Mozzarella)
40 Lbs.



Chunks



Sticks

Blunts



Square Bars



Wedges



Baby Rounds



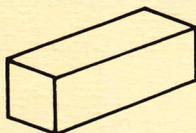
Midget Horns



Slices

LOAF

(Processed)
5 Lbs.



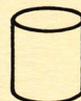
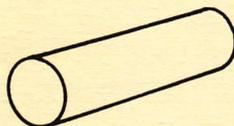
Slices



Chunks

HORN

(Cheddar, Colby, Monterey Jack)



Midget Horns



Full Moons



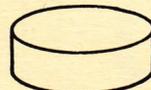
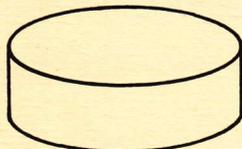
Half Moons



Wedges

DAISY

(Cheddar, Colby)
20 Lbs.



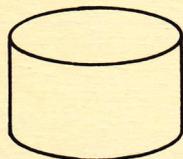
Full Wheels



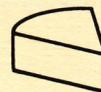
Half Wheels

WHEEL

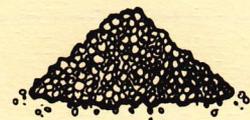
(Blue Cheese)
6 Lbs.



Full Wheels



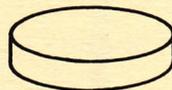
Wedges



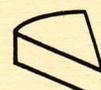
Crumbles

DISK

(Camembert, Various Soft Cheeses)
Random



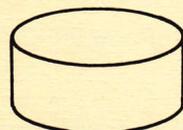
Full Disks



Wedges

ROUND

(Cheddar, Colby)
100 Lbs.



Full Rounds

*Variety of
Portion Controlled
Slices of Pasteurized
Process Cheese*

**Side by Side
Stak Pak Sliced Cheese**

5# 200 slice
.40 oz. per slice
40 slices per pound
.081" thick
4/2/5# case
40# case weight
42-3/4# gross weight

2.62"

2.92"

**Side by Side
Stak Pak Sliced Cheese**

5# 160 slice
.50 oz. per slice
32 slices per pound
.088" thick
4/2/5# case
40# net weight
42-3/4# gross weight

3.07"

2.92"

**Side by Side
Stak Pak Sliced Cheese**

5# 96 slice
.83 oz. per slice
19.3 slices per pound
.115" thick
3/2/5# case
30# net weight
32# gross weight

3-7/16"

3-3/8"

Stak Pak Sliced Cheese

5# 184 slice
.434 oz. per slice
36.8 slices per pound
.074" thick
4/2/5# case
40# net weight
42-3/4# gross weight

3"

Stak Pak Sliced Cheese

5# 144 slice
.55 oz. per slice
28.8 slices per pound
.080" thick
4/2/5# case
40# net weight
42-3/4# gross weight

3-1/8"

Stak Pak Sliced Cheese

3# 108 slice
.444 oz. per slice
36 slices per pound
.077" thick
4/3/3# case
36# net weight
38-1/2# gross weight

3-1/8"

3"

Stak Pak Sliced Cheese

3# 48 slice
1.00 oz. per slice
16 slices per pound
.140" thick
4/3/3# case
36# net weight
38-1/2# gross weight

3-7/16"

3-3/8"

Stak Pak Sliced Cheese

5# 120 slice
.66 oz. per slice
24 slices per pound
.096" thick
4/2/5# case
40# net weight
42-3/4# gross weight

3-7/16"

3-3/8"

Stak Pak Sliced Cheese

3# 72 slice
.66 oz. per slice
24 slices per pound
.096" thick
4/3/3# case
36# net weight
38-1/2# gross weight

3-7/16"

3-3/8"

BASICS OF CHEESE STORAGE AND HANDLING

PROPER STORAGE RECOMMENDATIONS

- Refrigerate immediately (36-45°) to preserve product freshness and flavor. Plan to keep a maximum of 2 weeks cheese on hand at any one time to allow for better turnover.
- Place new product behind existing product in cooler, rotating on a first in first out basis.

GENERAL RULES FOR SHELF LIFE

- Categories of cheese differ in keeping quality because of their composition, particularly moisture content.
- Soft, high moisture cheeses generally have a shorter shelf life.
- Hard cheeses, typified by Cheddar, can keep for longer periods if packaging, integrity and storage conditions are well controlled.

BASIC CHEESE HANDLING

- Keep AIR OUT and MOISTURE IN.
- WRAP ALL CHEESE TIGHTLY after cutting. This prevents cheese from drying out and will retard mold development.
- DO NOT REUSE CHEESE FILM. The fine coating of oil left by the cheese will prevent an air-tight seal if used again. Thus, the shelf life of the cheese will be shortened.
- DO NOT FREEZE CHEESE (except cold pack spreads). It won't spoil, but the texture will be less smooth. (Soft and/or higher fat cheeses freeze better than lower fat cheeses, however.) Mozzarella can be frozen if thawed under refrigerated conditions. Expect some excessive moisture to separate from the cheese. This is because of the high moisture content of this cheese.
- Cheeses may need to be "turned" if they are to be held longer than a few weeks. This keeps natural oils evenly distributed.
- Blue vein cheeses will develop excessive mold growth if accessible to much air. This is not harmful but may not appear appetizing.
- After cutting a crumbly-type cheese (e.g. aged cheddar) draw flat surface of a knife across cut surface of cheese to "close" pores and prevent moisture loss.
- Don't be alarmed by "ballooning" bags, rinds or wrappers. Live cheeses never stop ripening. During this process certain natural gases collect. Simply prick the rind or wrapper to let the gas escape shortly before use. The "aroma" of this gas is likely to be strong. Once the wrap integrity is altered then oxygen (air) availability may cause some mold to occur.
- TASTE, not smell is the best indicator of the quality of a cheese.

HOW TO READ CODE DATES

PLANT	PRODUCT	HOW CODED	HOW TO READ CODE
Mayville	5# Shred	Pack Date-8327	*
Gustine	Shred and Dice	8327G	*, G=Gustine
	3&30# Cream Cheese	8327 G 6	*, G=Gustine, 6=hour
	40# Block	Nov. 22 V5	Date and vat of make.
	8/6# Muenster	Nov. 22 V5	Date and vat of make.
	8/6# Mozzarella	Nov. 22 V5	Date and vat of make.
	4/10# Lactics	Nov. 22 V5	Date and vat of make
Marshfield	6#&20# Mozzarella	48.8 lbs. Vat 31 Nov. 18 88	Pounds, Vat #, Prod. Date
	String Cheese	22 Mar 89	Day - Month - Year (expiration)
Preston	Provolone	D-11-18-23	D=Provolone, 11-18=date, 23=vat number
	Mozzarella	B-11-18-3	B=Mozzarella, 11-18=date, 3=vat number
Faribault	Blue Cheese	8327 FB1	*, FB=Faribault, 1= Sublot
Waukesha	Process	8327W	*, W=Waukesha
Whitehall	6# Mozzarella	04 309004	04=Pallet no., 309= Julian day, 004=repeat of pallet no.
	Most Shredded Cheese	02 SL325 - On bag & shipping case	02=hr.of prod., SL =reg. shred, 325= Julian day.
Fredricksburg	8/6 Mozzarella	Nov. 22 V5	date & vat of make
	Sour Cream	9047F1	*, plant, batch
	5# Shreds	9047F	*, plant
	Cream Cheese	X9100, Pack 9001 use by May 1, 89	Lot No., Julian pack date Use by date
Holland	Aerosol	Expiration	

*Julian = 8327=8 is year, 327 is make day.

QUESTIONS MOST ASKED

BLUE CHEESE

What gives blue cheese its blue veining?

The veining in blue cheese develops while aging, after a blue mold flora, Penicillium roqueforti, is added. In making blue cheese, openings between the curd particles are specifically created so that the blue mold, flora, has a place in which to grow. Air is allowed to enter the cheese also, and this promotes blue mold growth.

What is the government's minimum age for blue cheese?

- 60 days age
- Treasure Cave is 100 days

CHEDDAR

Define the age window for the following cheddars:

Mild - 10 to 30 days

Medium - 4 to 16 weeks

Sharp - 4 to 8 months

Extra Sharp - 8 or more months

NOTE: Keep in mind that since cheese is a living organism optimal flavor profiles may develop outside the above windows. This is merely a good rule of thumb approximation of time needed for characteristic flavor profiles to develop.

What affects cheddar as it ages?

Heat

- Keep at 40 degrees
- Room temperature accelerates bacterial (culture) growth and that fact can cause excessive breakdown and the development of sometimes bitter taste.

COLBY

What is the difference between colby and cheddar?

The basic difference is the moisture and texture

- Colby is 40% maximum moisture, open texture
- Cheddar is 36-39% maximum moisture, closed texture

CREAM CHEESE

What is the difference between Cream Cheese and Neufchatel?

	MOISTURE	BUTTERFAT
Cream Cheese	55% max.	33%
Neufchatel	65% max.	20%

Questions Most Asked (continued)

MOZZARELLA

What are the differences between 2.8 and 2.0% Mozzarella?

- The basic difference is the milk fat
- 2.0% has 32-45% milk fat
 - 2.8% has 45% milk fat minimum

PASTEURIZED PROCESS CHEESE

What is the difference between process, cheese food and cheese spread?

The basic difference is moisture and fat content.

	<u>MOISTURE</u>	<u>FAT</u> (on a dry basis)
Process	40% max.	50% min.
Cheese Food	44% max.	23% min.
Cheese Spread	52% max.	22% min.

What are the advantages of the Stagger Pak?

- Each piece is slightly offset for ease of separation
- Portion cost control
- Easy handling and storage

What are the differences between the following:

"Stak Pak" - all slices are stacked on top of each other

Side-by-Side - slices cut vertically and horizontally and packaged in stacks, side-by-side

Ribbon, pullman, sandwich slice - sliced horizontally (all are the same). Lines on the package indicate where to cut in order to have desired slices (i.e., 36 count will yield 108 or 144).

What is the basic difference between natural and process?

Process is a blend of natural cheeses which have been heated to a point at which all further ripening stops (pasteurization) and is in effect preserved. Process cheese contains emulsifiers to bind fat and stabilize the cheese particularly as needed by the end user.

SOUR CREAM

What is meant by Grade A as it relates to Sour Cream?

Cream and milk used is highest quality (visual, taste, bacterial, etc.) as defined by federal guidelines.

Specified processing procedure and equipment can only be used with Grade A milk to obtain Grade A cream.

Questions Most Asked (continued)

SOUR CREAM (continued)

What is the difference between Sour Cream and Sour Cream dressing?

Sour Cream dressing has less than 18% milk fat.

SUBSTITUTES

What is the difference between natural cheese and analogs (imitations)?

Vegetable fat is substituted for milk fat and as a result the imitation products have little or no cholesterol.

What is the difference between substitutes vs. imitation?

Substitutes are fortified with vitamins and are therefore more nutritionally equivalent to the natural cheeses.

SWISS

What are the differences between Swiss cheeses - Grade A, B or C?

U.S.D.A. has grading standards, the smaller the number and size of holes, visual and textural defects, off flavor, the lower the grade.

What causes the holes in Swiss cheese?

Expanding gases emanating from specific Swiss cheese cultures added to the milk. Also the way by which the Swiss curd is packed.

GLOSSARY OF COMMON CHEESE TERMS

AGING: Also called curing, is the process of holding cheeses in a carefully controlled environment to allow the culture in them to develop and (usually) accentuate the basic flavors in the cheeses the longer the age.

BARREL CHEESE: Natural cheese curds packed in 500# barrels generally for process cheese manufacture.

BLOCK CHEESE: Natural cheese aged in 40# blocks from which most natural retail cheese styles are cut.

CHEDDARING: The process of milling or working the curd after initial separation from the whey. This process allows a more complete and even draining of whey before pressing the curd.

COLD PAK: A method of grind/blending and packing natural cheeses without the use of heat, thus without arresting the aging process. The product is often sold in earthenware jars or similar containers.

CRYOVAC: Technically, the name of a type of packaging material. The name has also come to signify a method of packaging using a vacuum drawn against cheese encased in a bag that inhibits the growth of oxygen-breathing mold, thus preserving the freshness of the cheese.

CURD: The solids in coagulated or curdled milk from which the cheese is made.

CURING: Methods and conditions of treatment for milk or cheese from manufacturing to marketing (temperature, humidity, sanitation). These conditions often affect the flavor of the cheese.

HAYSSEN: Packaging system which excludes oxygen by flushing the atmosphere inside the cheese wrapping with a "neutral" gas. This is done in order to inhibit the activity of spoilage organisms and thus extend shelf life.

FDB (Fat on Dry Basis): In dry matter refers to fat content in total solids of cheese. This percent is calculated as follows:

$$\frac{\text{wet fat}}{\text{weight of cheese} - \text{moisture content}} \times 100 = \% \text{ FDB}$$

IWS: The accepted abbreviation for "Individually Wrapped Slices"; used to describe the single slice form of Process Cheese, Cheese Food and Cheese Spread that is wrapped in clear cellophane and normally packaged in an overwrap of cellophane for consumer purchase.

PARAFFIN: The wax used to coat many Natural Cheeses to prevent excess mold growth or spoilage.

PARAKOTE: Trade name for the wax coating over a clear wrapping material that is used primarily to protect Process Cheeses, Foods and Spreads in loaf style.

PILLOW PACK PACKAGING: The shredded cheese is placed in a special type film bag and then back flushed with a specific gas mixture of nitrogen/carbon dioxide which allows for the pillow-like appearance. Advantages: (1) microbiological state of the cheese is protected; thus a long shelf life, less spoilage and acidity; (2) fines and balling up are reduced substantially.

RANDOM WEIGHT: Method of cutting and packaging cheese in a variety of sizes and shapes for a shipment order which allows for prepricing to retailers' specification. Contrary to EXACT WEIGHT method where all cheeses are the same shape and weight.

RAW MILK: Refers to milk which has not been pasteurized (heated above 160 degrees) to kill the large proportion of bacteria normally present in fresh milk. In the U.S. most all cheeses are made from pasteurized milk since organisms harmful to human health that are found in unpasteurized milk can survive in cheese unless it is fully and properly aged (at least 60 days by federal law).

RIPENING: Chemical and physical alterations which occur during the curing of cheese (development of a rind, flower, blue vein pattern, etc.).

SALTING: Or brining, is the step in cheesemaking that, as the name implies, adds salt to the cheese. In addition to helping preserve the cheese, the salt slows bacterial action making it more controllable during aging.

STARTER: A culture normally made of varying percentages of lactic acid bacteria or mold spores, enzymes or other micro-organisms. These aid in the process of curdling milk for the cheesemaking process and are responsible for the various flavors that characterize a particular cheese.

STYLE: Classification of a cheese by its size, shape and packaging normally used in terms of the way it is presented for sale.

MAMMOTH: Largest style (over 100 pounds) of American Cheese

BARREL: (see definition on pg. 14)

BLOCK: Standard is 40# rectangular shape.

FAVORITE: Small cylindrical shaped cheese 7 inches in diameter, 3-1/2 inches high and weights about 5-1/2 pounds.

FLAT: Cylindrical in shape, 14-1/2 inches in diameter, approximately 6 inches high and weighs 32-37 pounds.

DAISY: Cylindrical in shape usually weighing about 22 pounds.

GEM: Cylindrical in shape usually weighing 5 pounds or less.

LOAVES: Five pound pieces made from the block.

LONGHORN: Long cylinder shape of certain cheeses made in the longhorn mold (approximately 13 pounds).

MIDGETS: Cylindrical in shape, 9-3/4 inches in diameter, approximately 4-1/2 inches high and weighs 11-12 pounds. Single midgets are known as **COMMODORES**.

MOON: Slice of a longhorn cheese. Half moon is half a slice of a longhorn cheese.

WHEEL: Round shaped cheese.

WHEY The thin, liquid residue which is separated away from the curd in the cheesemaking process. When dried, this product is called dry whey.



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