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**PHILIPPINE CARABAO CENTER**  
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# iASK

innovative answers • solutions • knowledge

ISSN: 2507-864x  
Series No.: B-03-2017

## MOZZARELLA, STRETCHY NO MORE?

Stretchable  
mozzarella  
cheese for pizza  
making.

**Mozzarella cheese is a white, soft, lightly salted, unripened cheese variety of the Pasta-filata family, which means *stretched curd*. Mozzarella cheese is traditionally made from buffalo's milk.**

Most milk contains proteins, casein micelles, and has a pH of 6.5 carrying a negative charge. High acidity will result in cheese that crumbles, while low acidity will result in cheese that stretches and melts well. As the pH level decreases, the calcium phosphate in the casein micelles dissolves and is replaced by hydrogen that causes an increase in the curd's stretchability.

Acidity monitoring is important in mozzarella cheese making, starting with the milk that is used until the formed curd is stretched. Good coagulation is achieved if the milk has the right degree of acidity. The acidity and the temperature of the milk are the factors affecting the coagulation action of rennet. If the curd would not reach the right degree of acidity during the maturation phase, then it may not be possible to be stretched. Proper acidity allows the chemical-structural alterations that are necessary for the entire stretching process.

# Problem

Mozzarella cheese either breaks upon stretching or does not stretch.

# Solution

**Heat treatment.** Milk to be used should be heated at 72-75°C for 15 seconds to kill any pathogenic bacteria present.



**Cooling.** After pasteurization, cool the milk at 40-45°C.

- Starter culture such as *Lactobacilli* has an optimum growth at the said temperature range.

**Addition of culture.** Mix sufficient amount of milk with the culture to ensure the distribution of the culture with the whole mix. Let it stand for 1-2 hours.



- Mozzarella produced with culture yields a more aromatic cheese.

**Addition of rennet.** Dissolve rennet with small amount of water, then add to the milk. Let it stand for one hour or until it breaks cleanly.

**Cutting of Coagulum.** Cut the curd into two-inch cubes and leave for five minutes. Cut into smaller cubes.

- Smaller cubes and longer waiting time expel more whey in the mixture that leads to harder cheese.

**Draining.** Drain curds for 1-2 hours

**Stretching.** Check the pH of the curd if it reached pH 5.2 to 5.4. Submerge curd into 60-65°C water and stretch.

- pH of the curd defines the stretchability of the cheese. Below 5.2, the curd's texture will be grainy while above it would cause the cheese to not stretch



**Molding.** Shape the curds into balls.



**Packaging.** Pack mozzarella balls in a one percent brine solution.



**Storage.** Store the cheese at 0-4°C.

## Results

Stretchable mozzarella cheese for pizza making.

## Lesson Learned

In mozzarella cheese making, pH is important. It defines its stretchability, the main functional property of mozzarella.

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**Keywords:** mozzarella, pH, stretching





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**ABOUT THE MATERIAL**

iASK, an acronym for innovative answers, solutions, and knowledge, is a knowledge product series packaged and produced by the Philippine Carabao Center with the Southeast Asian Regional Center for Graduate Study and Research in Agriculture. This iASK issue specifically intends to help processors of mozzarella cheese in improving the quality of their product.

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