



## Turning Milk into Plastic

### Materials

- milk
- white vinegar
- teacups/thermos
- measuring spoons
- microwave
- teaspoons
- paper towels
- cookie cutters
- food dye
- rolling pin



*Original Source: [Sciencebuddies.org](https://www.sciencebuddies.org)*

### Instructions

1. Heat up a thermos or cup of milk in the microwave until the milk is steaming.
2. Pour milk into a cup (if using a thermos) then add 4 teaspoons of white vinegar to each cup of milk.
3. Stir the cup slowly with a teaspoon, you should begin to see milk clump together and form curds. Add a few drops of food dye if you want to colour your plastic.
4. Stack four layers of paper towel on top of each other. Once the curds have cooled down a bit, scoop them out and put them on the paper towel to drain the excess water. Fold the excess paper towel over the curds and press down to squeeze out more water.
5. Knead all the curd into a ball then roll it out flat using your hands or a rolling pin, use your hands or cookie cutters to cut your plastic into shapes while it is still warm.
6. Once you have created your ornaments, let them cool overnight.

This process is the creation of casein plastic, named after a special protein found in cow's milk. This plastic is biodegradable, nontoxic and even edible! In the past casein plastic has been used for items such as jewellery, belt buckles and buttons for clothes.

Casein plastic used in the 1930s and '40s to manufacture these decorative belt buckles (Photograph courtesy of [Galessa's Plastics Photostream](#), 2007)

