

## Making plastic from organic materials The milkstone

### Material

- A hot plate
- A pan
- A container
- Milk
- 4 tablespoons of vinegar per liter of milk
- A cloth, colander or muslin

### How?

- Heat the milk slightly (between 40 and 70 degrees Celsius)
- Add the vinegar and stir -> the milk separates and the casein collects in white pieces
- Filter the result through the colander or muslin to keep only the solid part of the mixture
- Mold a shape, sculpture, container or other
- Dry the object in the open air for 1 day or with a hair dryer to speed up the process

### Explanations

The milk protein, casein, reacts when immersed in an acidic environment. Here, the vinegar helps us to increase the acidity of the milk. The vinegar helps to prevent the casein from mixing with other liquids. By filtering the milk, we can collect the material that will allow us to make the plastic.

### For the little ones

This is an opportunity to discover the products (milk and vinegar): observe, smell, taste, describe.

### For older children

Do some research from the following questions:  
What else can we do with milk casein?  
What other organic materials can give plastics?



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