

Lime in toothpaste



Does your toothpaste contain lime?

Distinguish toothpastes with and without lime



Research question

In addition to fluoride, some toothpastes also contain lime as a solid component. This serves to gently remove plaque from the teeth. You can find out whether a toothpaste contains lime with a simple experiment. Lime reacts with acids: If there is lime in the toothpaste, it will start to foam when mixed with vinegar or citric acid. **Does your toothpaste contain lime?**

You will need

- Eggshells
- Citric acid
- Salt or sugar
- Citric acid (liquid)*
- Toothpaste (with lime)
- 3 glasses
- Measuring jug
- Freezer bag
- Rolling pin

* From the supermarket



How to do it

Step by step



Grind eggshells

1. Put some eggshells in a freezer bag and crush the eggshells with a rolling pin.



Prepare three glasses

1. Fill 3 jam jars as follows:
2. 2 tsp sugar (or salt)
3. 2 tsp eggshells
4. 2 tsp toothpaste



Fill with citric acid

1. Now pour 100 ml of citric acid into each jam jar.
2. Observe what happens.



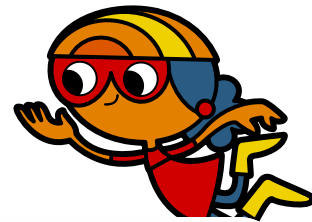
Observe and compare

1. If there is lime in the toothpaste, the citric acid dissolves the lime and carbon dioxide is released. As a result, it starts to foam. If a toothpaste does not foam, it does not contain lime.



Is there any lime in your toothpaste?

Distinguish toothpastes with and without lime



Context

This experiment is part of a series of experiments on the subject of dental health and care. The topics covered include acids and their role in the development of caries, evidence of acidity, and the components and function of toothpastes. In addition to fluoride and surfactants, toothpastes sometimes contain lime as a solid cleaning agent. This is used to remove plaque from the teeth. Whether a toothpaste contains lime can be tested with a simple experiment.

Lime

Lime, or as the chemists say calcium carbonate, is widely distributed mineral. It occurs in rocks, but also as a biological composite in eggshells. Lime is acid-soluble. That's why cleaning products designed to remove lime stains contain acids. When an acid such as citric acid meets lime, carbon dioxide is released. This leads to the formation of foam - a sure indication of lime.

