

Chocolate Crackles and Sherbet

Student Notes

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Introduction

The materials we use in cooking can undergo several different processes that change the way they look and behave, affecting the texture and taste of our food. This investigation studies some of those changes.

Part 1 - Chocolate Crackles



Question

By making chocolate crackles, discover what happens to the properties of materials when they are heated and cooled.

Plan

This investigation has been planned for you.

You will be given:

Ingredients for Chocolate Crackles

- 4 cups Kellogg's® Rice Bubbles®
- 1 cup icing sugar
- 1 cup desiccated coconut
- 250g copha®, chopped
- 3 tbsp cocoa

Equipment

- Large bowl
- Mixing utensil / spoon
- Saucepan and heat source
- Patty cases

Conduct

Procedure

1. In a large bowl, mix the Kellogg's® Rice Bubbles®, icing sugar, cocoa & coconut.
2. Slowly melt the cophera® in a saucepan over a low heat.
3. Allow to cool slightly.
4. Add to Rice Bubbles mixture, stirring until well combined.
5. Spoon mixture into paper patty cases and refrigerate until firm.

Observations

Write down as many observations as you can while you conduct the experiment.

What happens to the colour, texture, hardness of the materials?

Can you still see the separate ingredients?

Analysis

Compare the melting of the cophera to the dissolving of the icing sugar into the liquid cophera.

What was the difference in the two processes?

Why did the cophera change?

What happened to the cocoa?

How did the coconut change?

Discussion

Share your findings with the class and discuss the science behind them.

Conclusion

When the solid cophera is heated sufficiently, it melts to become a liquid, allowing us to mix it with other ingredients. After we have mixed it with the other ingredients it cools and solidifies, holding the other ingredients together and making our chocolate crackle cakes nice and hard to bite into.

Part 2 – Making Sherbet



Question

By making sherbet, discover what happens to the properties of materials when they are mixed.

Plan

This investigation has been planned for you.

You will be given:

Ingredients for Sherbet

- 1/2 teaspoon of citric acid crystals
- 1 teaspoon of icing sugar
- 1/2 teaspoon of jelly crystals
- 1/4 teaspoon of bicarbonate of soda (baking soda)

Equipment

- measuring spoons
- clip lock bag
- paddle pop stick
- water
- vinegar

Conduct

Procedure

1. Mix thoroughly together in a clip lock bag. Be very exact with the measurements as it makes a difference to how the sherbet tastes and reacts!
2. Taste a little solution (use a paddle pop stick to get the sherbet out of the bag).
3. Mix a little sherbet with a few drops of vinegar.
4. Mix a little with a few drops of water.

Observations

Write down as many observations as you can while you conduct the experiment.

Are there any colour or texture changes?
Can you still see the separate ingredients?
What else can you see?

Analysis

What are the characteristics of the substances you are using?

What happens when you mix them together:

Are all the original substances still there in the mixture?

Has anything dissolved, melted, mixed?

Is the product at the end the same or different to the start products (appearance, structure, behavior)?

Are the original properties of the sugar, jelly, soda etc still evident?

Can you separate the substances back to their original form?

When you add a liquid:

Can you see any colour?

Any action?

Any change to the substance?

What happens when the sherbet is in your mouth?

How would you describe the feeling?

What state do you think the sherbet is in when it mixes with your saliva?

Discussion

Share your findings with the class and discuss the science behind them.

Conclusion

The bubbles (fizzing on your tongue) are a sign of a chemical reaction occurring.

Bicarbonate of soda mixed with citric acid powder on its own does not react, but adding a liquid allows the reaction to take place quickly, giving that wonderful sherbet fizz.