Cheese has long been part of human history. Cheese was widely introduced to the world in the year 1815 when the first cheese factory in Switzerland was established after scientists discovered how to control and mass produce rennet. (Rennet is an extract from the fourth stomach of young ruminants, and will cause the milk to coagulate.

Following this innovation the mass production of processed cheese began. New Zealand's first cheese company was established in 1871, since then New Zealand has become a global cheese market with a need for new innovative and processed dairy products. Cheese contains a wide variety of nutrients including calcium, protein, phosphorus, zinc, Vitamins A and B12. The high quality concentrated protein contained in cheese provides the body with the essential minerals required for muscle growth and strength.

**Introduction**

Cheese snacks – animal shapes, fruit burst cheese, cheese icing – savoury & sweet cheese, chocolate, cheese cake bars, flavoured cheese – jellybean, cheese macaroni, cheese flavoured pasta, filled cheese balls, cheese plough, curly grilled cheese, cheese powder, energy drink cheese, cheese pizza toppings, cheese pasta sauces, cheese balls, marshmallow cheese, ready-made cheese sauce.

**Ingredients:**

- 4g collage gelatin
- 14g water
- 300g Colby cheese, shredded fine
- 8g whole dry milk powder
- 2g salt
- 2g citric acid
- 3g baking soda
- 2.5g dried tomatoes

**Desired quantity of a specific flavouring (100g cranberry, vanilla paste, sundried tomato)**

**Directions:**

1. Sanitise benches, tie hair back, apron on and hands washed using soap and hot water before any ingredients is handled & prepared.
2. Prepare desired moulds for cheeses, ensuring they have been rinsed and dried with hot water.
3. Weigh each ingredient out to ensure correct measurements are being used.
4. Sprinkle the gelatine over the water in a small cup and let them sit until the gelatine softens, about 5 minutes or until needed to be added in milk.
5. Meanwhile, pulse together the shredded cheese and dry ingredients in a food processor until fully combined and a medium consistency.
6. Bring the milk to a boil in a small saucepan on medium heat, ensure the milk reaches 85°C for 10 seconds.
7. Add gelatine once milk has reach desired temperature, followed by adding the shredded cheese & dry ingredients and begin mixing vigorously with a sick blender while cheese mixture is still on the heat.
8. Keep mixing until temp has reach 65°C for 10-20 seconds.
9. Take the cheese off the heat, pour, blend or marble in desired quantity of flavouring (cranberry, sundried tomato or vanilla) – ensure this done quickly otherwise cheese will start to set.
10. Pour into moulds, place in fridge until fully set. Consume within 48 hours.

**Method**

**Research & Ideas**

**Cheese ideas:**

- Cheese snacks – animal shapes, fruit burst cheese, cheese icing – savoury & sweet cheese, chocolate, cheese cake bars, flavoured cheese – jellybean, cheese macaroni, cheese flavoured pasta, filled cheese balls, cheese plough, curly grilled cheese, cheese powder, energy drink cheese, cheese pizza toppings, cheese pasta sauces, cheese balls, marshmallow cheese, ready-made cheese sauce.

**Flavour ideas (NZ based):**

- Honey, manuka honey, marmite, mince, lamb, kumara, hokey pokey, pineapple lumps, L&P, cranberry, tomato, vanilla, chilli chocolate, basil, herbs.

**Who:**

- Teenage girls
- Men: Finger food
- When: All year round

**Why buy:**

- Snack, to eat on the go, busy teenagers

**Eaten when & where:**

- Anytime, anywhere, by anyone

**Sensory Testing**

On Monday 25th of August, Chubbles hosted our sensory panel trial. The trial panel consisted of 20 people made up of a combination of year nines, year eleevens, and year thirteen. This age group encompassed the full range of 13 to 18 which is our target range. The trial can extremely smoothly, with only a few minor hiccup - we initially intended for fifteen people to undergo the trial, however due to quirks of communication we ended up with twenty persons, however, this was a beneficial error as it made the trial more valid with a larger number of participants. One observation made during the trial was that there were a few participants who chose to taste the cheese on the crackers – this may have affected their perception of the cheeses, especially regarding the texture of the cheese. When the participants entered, they were each sat down with a tray containing the four chosen cheese types: tomato, vanilla, and cranberry along with a control cheese without flavour. The tray also contained water and water crackers to eat between the cheeses to cleanse the palate so as to not taint the following cheeses as well as spoons to eat the cheese with. The participants also received a survey asking a few quick rating for each of the cheese, and a ranking of preference of all the flavours. The trial went smoothly, taking only half an hour or so to complete fully.

**Conclusion**

Our aim was to create a cheese-based snack product that contributes to the recommended daily intake of protein as well as contributing to other nutrients required in an adolescent girls diet. This cheese contains 5.5% of an adolescent girls protein needs, 3% of an adolescent girls energy intake and 1.5%-1.8% of an adolescent girls calcium intake. Cheese can be effectively used as part of an adolescent girls diet and would be supportive of the required nutrients and daily needs of the diet.

This product has been a great success, as we have created flavoured cheese-based snack product that teenager girls enjoy. We, Chubbles team members - Sian Fendall, Libby Young, Raquel Lopez-Lazano and Amanda Dover-Tod have all learnt many new skills around product development, presentation and team work. We have overcome many issues to get to where we are today.