



ICE CREAM

By Hattie N.

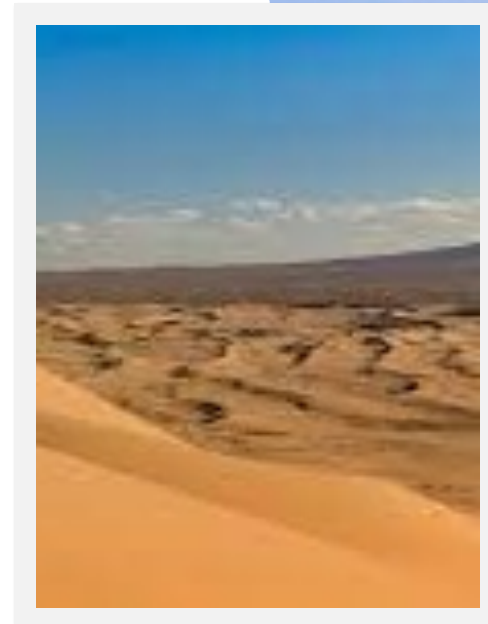
HISTORY

The origins of ice cream are a bit obscure as it is hard to know what to classify as ice cream.

Some sources say that in 550BCE, Persians poured grape juice over snow to make an ice cream-like food. In 60AD, Roman Emperor Nero got ice from the Apennine Mountains in Italy and mixed it with honey and wine to make the first sorbet.

However, it is often thought that Mongolians made the first real ice cream (which was more than just snow and fruit like the Persians). Around 700 years ago Mongolian horseman took cream as provisions on long journeys across the Gobi desert in winter. As the cream was transported in horse drawn carts, it was churned and vigorously shaken and, because the temperatures were below zero, the cream froze. This created something very similar to ice cream nowadays.

In 1671, ice cream was first recorded in the UK at a banquet with Charles II and in the 1700s ice cream was first recorded as being served in America. Later on, in 1744 the word ice cream entered the Oxford Dictionary.



WHAT'S ICE CREAM MADE OF?



The main ingredients of ice cream are water, ice, milk fat, milk protein, sugar and air.

Milk provides structure and flavour, and proteins help to form a stable interface between the fat and tiny pockets of air which gives ice cream its creaminess.

A lot of sugar is added to make the ice cream sweet and, along with salt, it dissolves into the milk and water to lower the freezing point of the ice cream.

This reduces the amount of solid ice formed, therefore keeping ice cream soft enough to scoop and eat. This is also why salt is used on roads as it melts the ice and lowers the freezing point of it.

Emulsifiers (such as mono and diglycerides of fatty acids) are used to allow the fat to be evenly distributed in the water. In ice cream, amphiphilic emulsifiers are used which means that the molecules have both hydrophobic and hydrophilic properties. The hydrophobic part of the molecule doesn't like water and so it will bond with the fat (in this case its milk) but the hydrophilic part loves water and so it will bond with the water.



LIQUID NITROGEN



Liquid nitrogen is a cryogenic liquid - these are liquefied gases that have a boiling point below -90°C (liquid nitrogen has a boiling point of -196°C). All cryogenic liquids are gases at room temperature and at normal pressures. These gases must be cooled below room temperature before an increase in pressure can liquefy them. All cryogenic liquids have two properties in common: they are extremely cold and small amounts of liquid can expand into very large volumes of gas - the gases are very cold and condense the moisture in air creating a 'fog' (this is seen in the video when they pour the liquid nitrogen into the ice cream and in this picture).

Using liquid nitrogen to make ice cream helps to form small ice crystals which gives it a creamy texture. This is because the freezing process is really quick, so the ice doesn't have enough time to form big ice crystals (which would give the ice cream a gritty texture).



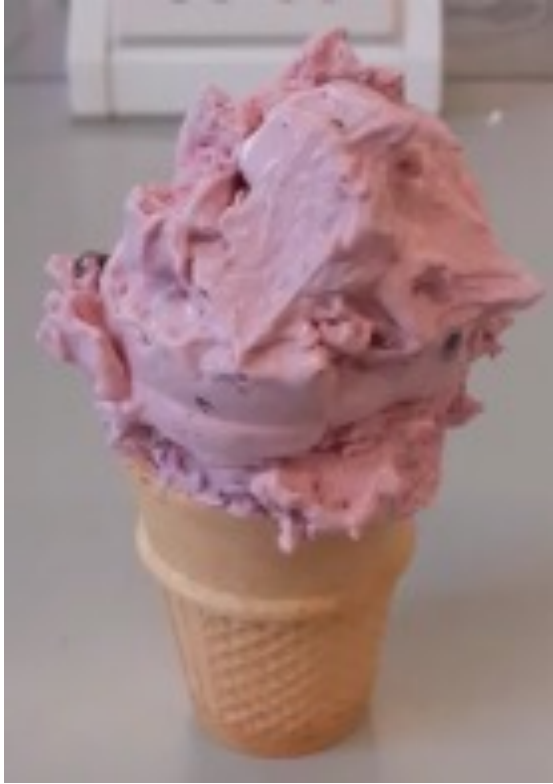
This is the Cambridge Festival's video of making ice cream



This is when I used liquid nitrogen :)

MAKING ICE CREAM

Liquid nitrogen can be very dangerous, so don't try this at home unless you have the right protective equipment. Instead, you can use an ice cream maker or just put it in the freezer.



The Cambridge Festival's ice cream



My ice cream

RESULTS!