Recipes

By

John Campbell

The Vineyard

Espuma's

Espuma is a Spanish word for foam.
For a Espuma to work, you must follow some rules.
The liquid must be viscous (thick).

If a hot Espuma is to be made, the thickening agent best used is **fat**, although starch will also work. Fat is available through **milk**, **double cream** and **butter**. A hot Espuma
should be held between 45°C – 65°C, for no longer than 3 hours. To stabilise a hot espuma that is fat free and very non-viscous a ratio of 2 gelatine leaves and 1 % agar per 300g liquid will work great.

If a cold Espuma is to be made, the thickening agent can vary considerably. **Fat** can be used in the form of **yoghurt**, **crème fraiche** and **double cream**. Other useable sources are **gelatine**, **agar** and **carrageen (vege gel)**. If yoghurt, crème fraiche, double cream, carrageen or agar is used, the Espuma can be served at room temperature. If using gelatine, the Espuma must be used from the fridge.
Use 3 leaves of gelatine per 600g of liquid for a cold Espuma.
With a lower ph, use 4 leaves per 700g.

The gas (propellant) used in standard Espuma's is **Nitrous oxide**, also known as **dinitrogen oxide** or **dinitrogen monoxide**. It has the chemical formula of N_2O.
It gives the espuma its 'foam' effect. By filling the espuma guns capacity by 3/4 or less, and vigorously shaking it after it has been charged will 'harden' the foam, giving it more hold.

Carbon Dioxide (CO_2) can also be used in espuma guns. The gas will give a 'fizzy' mouth feel upon the softer and less stable foam. If the liquid in the espuma gun contains no fat, the liquid will be temporally carbonated (fizzy like coca cola). The gasses can be mixed in the espuma to formulate a fizzy foam, hot or cold.

Foams at Home
Please note, for the 0.5l whipper, use only 1 charge

Pimms E'spuma - Savoury

150g apple juice
130g stock syrup
250g tonic water
140g pimms
3 leaves gelatine, soaked

Soak the gelatine in ice cold water.
Warm 100g tonic water, add the gelatine and stir until disolved.
Mix in the rest of the ingredients.
Place into an isi gourmet whip and charge with 2 x n2o charges.
Chill in fridge for 6 hours.

Pea E'spuma - Savoury

400g peas frozen
250g chilled chicken stock
10g butter, soft
100g double cream
100g full fat milk
seasoning

Blanch the peas for 3 minutes in salted boiling water, then strain.
Blitz with the chicken stock until smooth, add the cream butter, and blitz for another minute.
Pass through a fine sieve.
Heat to 60˚C in a heavy based saucepan and season.
Place into an isi gourmet whip and charge with 2 x n2o charges.

Parsnip and Vanilla E'spuma - Savoury

300g parsnips
½ vanilla pod
100g butter

200g chicken stock (warm)
100g full fat milk
100g double cream
3g sherry vinegar
Seasoning

Peel, core and thinly slice parsnips.

Place the butter and vanilla in a heavy based saucepan and cook the parsnips slowly until very soft. Approx 40mins.
Remove vanilla and blitz into a puree in a food processor.
Add the warm chicken stock, milk and cream.
Remove from food processor and pass through a sieve into a heavy based saucepan.
Heat to 60˚C. Add sherry vinegar and season to taste.
Place into an isi gourmet whip and charge with 2 x n2o charges.

Muscovado E'spuma - Dessert

400g full fat milk
200g muscovado sugar
3 leaves bronze gelatine

Soak the gelatine in ice cold water.
Warm the milk, add the gelatine and stir to dissolve.
Add the sugar and whisk until all is dissolved.
Place into an isi gourmet whip and charge with 2 x n2o charges.
Chill in fridge for 6 hours.

Hot Chocolate E'spuma - Dessert

300g 60% chocolate chopped finely
250g egg whites
200g water

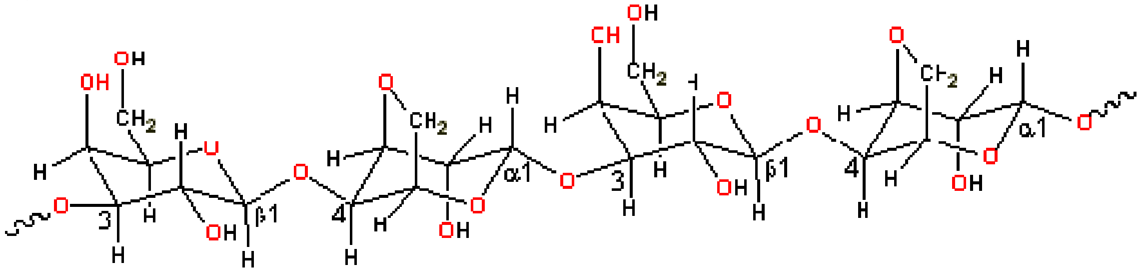
Melt chocolate gently in a glass or stainless steel bowl over a pan of hot water, ensuring the base of the bowl is not touching water.
The chocolate temperature must not exceed 40˚C
Add the egg whites and water, whisk gently.
Place into an isi gourmet whip and charge with 2 x n2o charges.
Warm in a pan of hot water to approx 60˚C.

Hot Pear E'spuma - Dessert

500g Pear Puree
250g Yogurt thick set

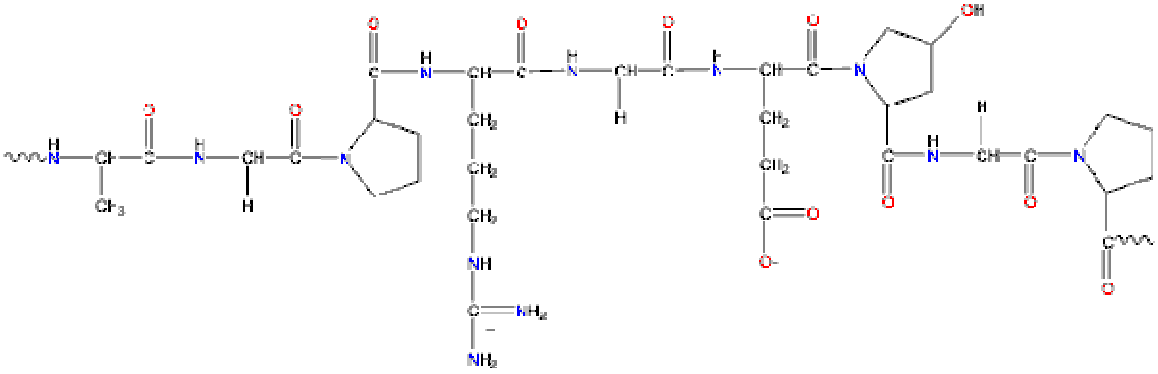
Whisk together lightly.
Place into an isi gourmet whip and charge with 2 x n2o charges.
Warm in a pan of hot water to approx 60˚C.

Agar – powder



- Prepared from red seaweed
- Stabilised in the presence of water
- Insoluble in cold water, but dissolves to give random coils in boiling water (gels)
- Must be added to a cold solutions, and boiled.
- Agar is used in the food industry in icings, glazes, processed cheese, jelly sweets and marshmallow.
- Is used as an alternative to Gelatine for Vegetarians.
- 99.5% of an Agar jelly will remain solid until 85°C
- Agar jellies will become liquid again at 95°C (Thermoreversible)
- Agar jellies will begin to solidify after boiling at 35°C – 43°C
- Upon mechanical action (high sheers stresses such as weight and vigorous stirring) Agar jellies will break down in a ‘crumble’ effect.
- Agar jellies are best made from solutions that are neutral.
- In a neutral solution 99.5% of the liquid will solidify, lowering the pH (getting more acidic) will lower the solution retention properties. Increasing the quantity of Agar can help with this, but a ‘harder mouth-feel’ is the end result.
- Enzymes of kiwi fruit, papayas, pineapple, peaches, mangos, guavas, and figs will breakdown Agar if uncooked.
- Use 0.9g Agar for 100g of a neutral liquid
- Use 1.1 – 1.3g of Agar for 100g of an acidic liquid.

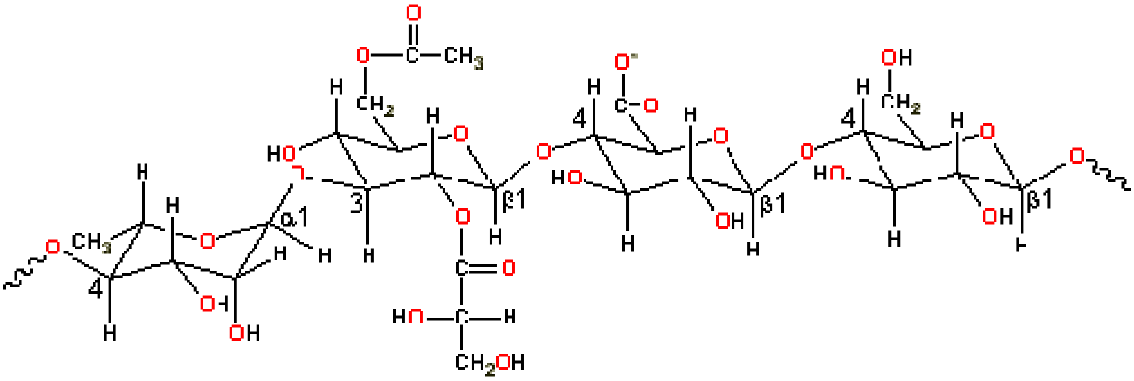
Gelatine



Is made from the thermal denaturation of collagen.

- Bronze leaf is the variety we use.
- Must be soaked prior to use in ice cold water until soft.
- Makes very elastic 'wobble' jellies.
- Sets firm when cold, melts when warm.
- Gives great mouth feel and flavour release.
- Use in foam stabilization such as marshmallow.
- Not suitable for vegetarians
- Melts completely at 35°C.
- Use 1 bronze leaf per 100g liquid for 'wobble' jellies that can be demoulded.
- Use 1 bronze leaf per 125g liquid for a soft jelly that is in a mould.

Gellan Gum



Prepared from a bacterial reaction with a carbohydrate

- Can form antiparallel bonds with Ca2+ an ion of Calcium. Meaning harder and firmer gels in the presence of Calcium. Gellan works by binding Calcium ions. If Sodium Citrate is used in a solution, many of the Calcium ions are bound with the Citrate primarily, meaning the Gellan will bind the remaining Calcium a lot stiffer, but as there is less available Calcium the result is a strong gel, with a softer mouth feel. Maybe necessary to increase the amount of Gellan used.
- Has amazing heat tolerance, will rise up to 100*C quickly and easily with great structure retention.
- If acylated will form soft elastic transparent and flexible gels. Chloride is a good source to acylate a solution; it's a reactive acid. Gellan LT100 is a high acyl gum.
- If de-acylated will form hard non-elastic brittle gels. Gellan F is a low acyl gum.
- Firm gels with 'crumble' in mouth effect, appear to 'melt' releasing water and associated flavours.
- Depending on concentration, will solidify at 50*C, if a strong solution is present then can solidify at up to 85*C once activated (taken to 100*C)
- As little as 0.1 % can be used to make a gel.
- LT100 is a high acyl form of Gellan, added to normal Gellan can produce various effects. A modified gel effect.
- Can set acidic liquids, but must be activated in non-acidic solutions.
- Adding Sugar to the solution will provide softer and more elastic gels with Gellan F, a solution containing 75% sugar can be made into a Gum.
- Semi-Gels can be made with Gellan F. A semi-gel has the viscous appearance of a liquid, but the stability of a gel. It can invisibly suspend particles.

    At a neutral pH:-
    Use 0.05% Gellan F in cold solution, bring to boil, leave to cool.
    At 35*C and below the solution will gel.

Solution Weight (g)	Gellan F Weight (g)
100	0.05
500	0.25
600	0.30
1000	0.50

- A mixture of Gellan F and Gellan LT100 can be used to make incredibly thin, robust and great eating jellies. These jellies can be rolled and even folded.

    At a neutral pH:-

Use 0.6% Gellan F, and 0.13% Gellan LT100 in a cold solution, bring to boil, leave to cool.

At 35*C and below the solution will gel.

Solution Weight (g)	Gellan F Weight (g)	Gellan LT100 Weight (g)
100	0.60	0.13
500	3.00	0.66
600	3.60	0.80
1000	6.00	1.33

- If a mixture is acidic (pH 6 and below) then a different system must be adopted. For a solution of pH 4 (very acidic to the pallet) :-

200g cold acidic solution }add together
0.8g Sodium Citrate

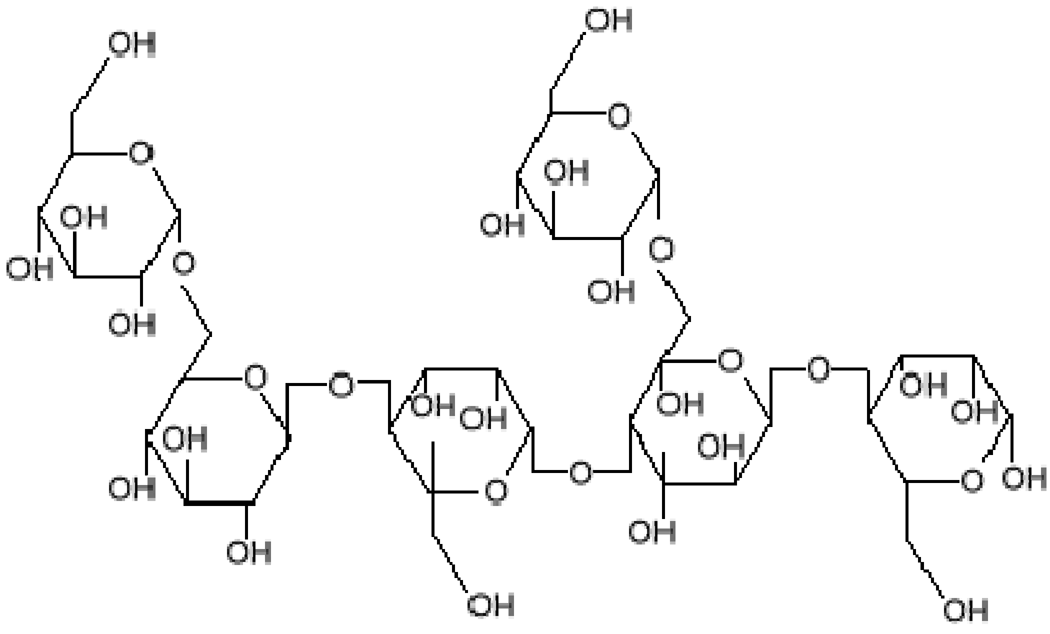
40g cold water }add together
1.2g Gellan F

simultaneously bring both solutions to the boil, then add them together, set in mould.

- Liquid Gels can be formed using Gellan F. A high concentration solution (1.38%) is brought to the boil, then blitzed using a hand held stick blender until cooled. This breaks down the chains of the Gellan, allowing a gel that is liquid, hot or cold with the capabilities of suspending particles, and even gasses.

Solution Weight (g)	Gellan F Weight (g)
100	1.38
500	6.88
600	8.28
1000	13.75

Guar Gum



prepared from 2 sugars of starch from a idian plant.

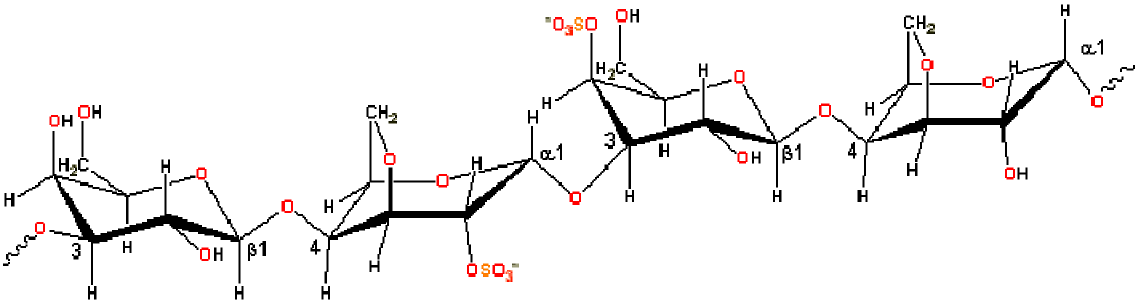
will prevent ice crystals forming in ice-cream
prevents liquids from leaking out in pies etc, preventing pastry from going soggy
makes a highly viscous product
can be used as a fat alternitive on ‘mouth feel glosss’
mixing with xanthan or locust bean gums increases the viscosity a lot

Lecithin

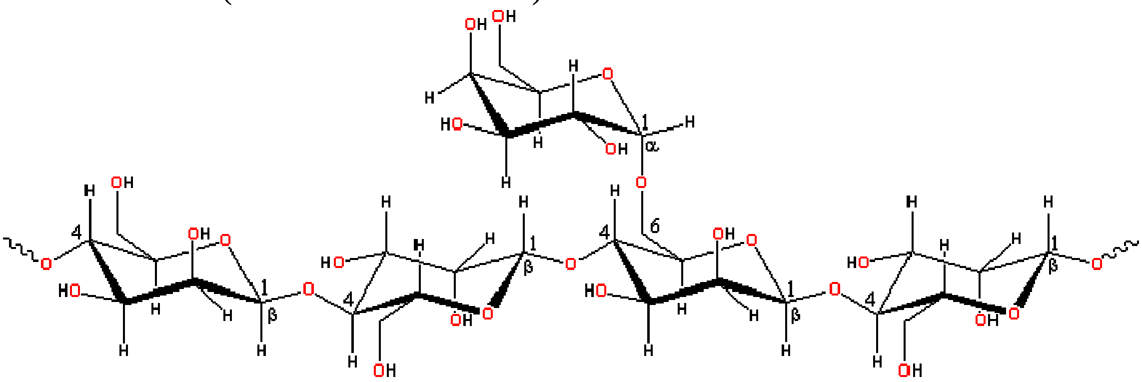
Soya is most common, but can only be used in strong flavours and bitter tones,
Milk is available but hard to source.
Is a fat emulser. Will mix liquids with oil.
Also a foamer on agitation. Produces very stable long lasting foams hot or cold.
as a general rule add 1.25g soya lecithin to 100g liquid for foaming.
liquid must be very non-viscous

Vege Gel

Contains **Carrageenan**:



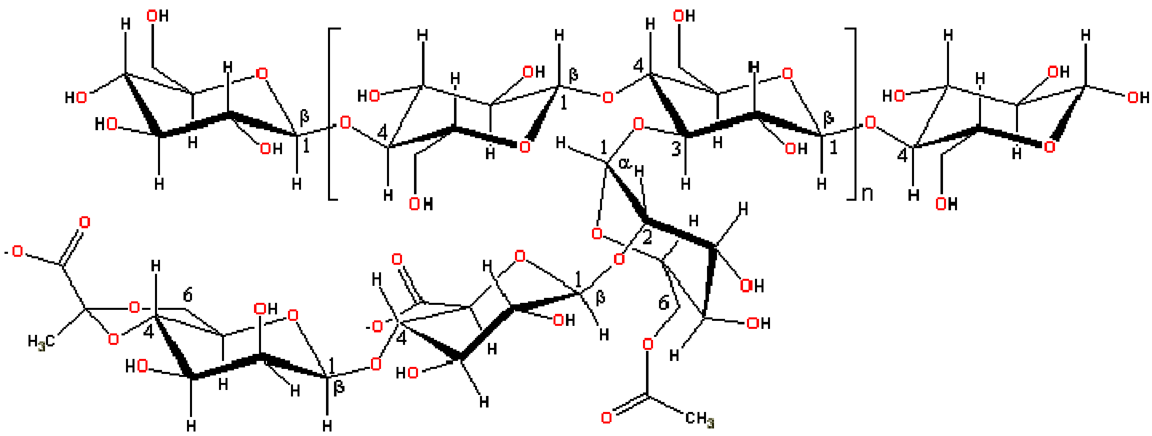
and **Carob Bean** (known as **Locust Bean**):



- Use vege gel at 5% in a solution.
- Use 50g for every 1000g liquid
- Use 30g for every 600g liquid
- Add to cold water, bring to boil. Will set at 53° - 65 °C depending on concentration of calcium ions present in solution.
- Will set acidic liquids but will not hold for more than 24hrs.
- It is thermoreversible. Will melt at 95°C, and set again upon cooling.

- Creates fairly brittle gels, but with superior mouth feel than agar.
- Cannot be frozen.
- If an acyl is added to make the solution more positive, the gel effect will become elastic.
- Synergises with locust bean gum (carob bean). Makes a stronger gel which is actually softer to the touch.
- Will stabilise milk, stopping curds splitting from whey.
- Will remain a jelly to approximately 95°C.

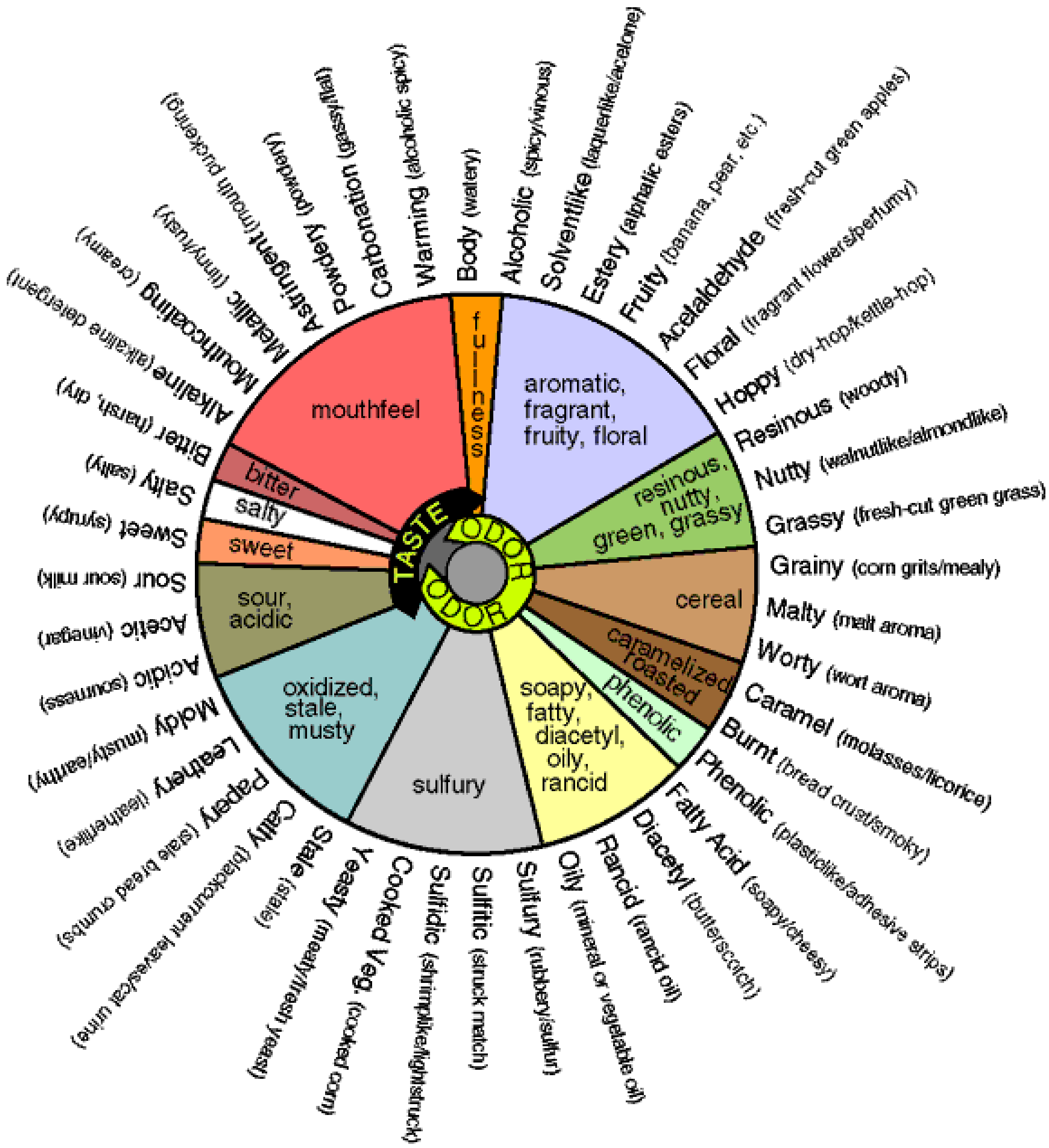
Xanthan Gum



Prepared from a bacterial fermentation of a starch

- Xanthan Gum is stable to acids, alkalis and enzymes
- It is highly pseudoplastic - low viscosity at high shear rates and high viscosity at low shear rates. Basically it's thick when un-disturbed, and thin when agitated.
- A 1% solution will appear gel-like, but will still sheer thin.
- Hydrates in cold solutions.
- Will be viscous hot or cold.
- Can be used as an emulsifier, stabilizer, and foaming agent.
- Xanthan is native at temperatures below 55°C, above this the viscosity can suddenly change. By adding 0.1% Sodium Chloride (NaCl) – salt, to a Xanthan solution of 0.2% - 0.5% the viscosity will be stable up to 100°C
- Can be used for the control of syneresis – will hold moisture in a stable form – basically would stop the filling of a tart from making the pastry case go soggy. Would keep sponges moister for longer.
- Synergistic interactions with Guar Gum and Locust Bean Gum (also called Carob Bean Gum) the synergy will be lost on high salt solutions and also acidic ones.
- Mixing 50:50 Xanthan Gum with Locust Bean Gum and bringing to boil will result a viscous clear liquid at 55°C and upwards, at 50°C and below will set a firm gel.
- Mixing 20:80 Xanthan Gum with Guar Gum will result in a viscous liquid that will not set, a Liquid Gel.
- The maximum hydration of Xanthan will be 2-3%. Use bottled water if requiring a high concentration, as calcium will have a large negative effect on hydration.

Flavour Wheel



Ice creams

- Sorbets

  The use of super neutrose (Louis Francois) or prosorbet (sosa) which has gelling agents in, when added to your mix it suspends the flavour with the water, preventing crystallisation. Thus a smoother mouthfeel that is more temperature stable both in the freezer and on the plate. Add 5g / l of mix with the sugar. Allow to mature for 12hours before turning.

- Homogenisation

  Milk is homogenised. This makes the fat molecules 1 micron in diameter. Too small to rise above and separate from the rest of the water, protein, lactose and other elements found in milk. The reason why you no longer get the ‘cream’ on top of a milk bottle.
  The micron size of the molecules of sugars and egg are also larger than that of milk (and cream). This is the reason often when a custard mix is made and

once it's chilled there is a separation of liquids – the top is thinner than the bottom. By homogenising the whole ice cream mixture there is never a separation, the main 2 advantages of this is an unbeatable smoothness in texture due to very small microns. The other is the immense lack of crystallisation.

Technical part:

Water molecules will expand into large crystals if there is sufficient space. If you imagine a container of brussel sprouts (large microns) next to a container of equal size but full of peas (small microns) then it's clear to see there is a lot less space for these growing ice crystals if the micron size of molecules are all small.

Add sugar to the ice cream mixture after the homogenisation process so the egg proteins can be successfully made small. Conventionally an egg protein molecule would be covered by as many as 2,000 – 4,000 sucrose (sugar) molecules. Once the egg is homogenised the protein molecules are broken down into very small parts (microns). The sugar then coats the egg microns, but the surface areas have been increased dramatically. Approx 500 – 800 sucrose molecules surround the egg particles if sugar is added later to the ice cream mix.

- Pasteurisation

  Milk is always pasteurised to give it a longer shelf life. There are enzymes that split fat from milk if they are not deactivated by heat, these are also found in eggs. Pasteurisation of ice cream mix needs to be done at a minimum of 71ºC for a minimum of 15 seconds.

- Storing

  At –10ºC/-11ºC, only 75% of the water is frozen (perfect for serving, but not to conserve).

  Complete water freezing is at -18ºC, therefore, if it is not to be used immediately, the core temperature must reach -18ºC as quickly as possible (within 4 hours).

Sugar:

Dextrose

Is a sugar with a semi-low sweetening power. It comes from the drying of complete hydrolisation of cornstarch – leaving only pure glucose. When mixed with saccarose (white sugar) it prevents it from crystallising.

It has very high non-freezing properties, so ice creams will stay a lot softer in a cold freezer. By adjusting the amount of saccarose and dextrose in a recipe a perfect sweetness as well as softness can be formed, specific to your freezer

Chemicals:

(when added to ice cream mixes the following need to be matured in the mix for at least 12 hours in a fridge)

Stab 2000 (Louis Francois) 3.5g / l

Is a stabiliser made from locust bean gum, various gelling agents and emulsifier for mono and diglycerides of fatty acids

Velvet Gel 2.5g / l.

Is a smooth gel, which contains sorbitol and mono and diglycerides of fatty acids. The sorbitol works as a humecant. The mono and diglycerides of fatty acids work as emulsifiers, ensuring complete emulsification and blending of ingredients. Use

Natracol 1-2g / l

Is a blend of hydrocolloids, or stabilising gels. Will prevent any water molecules binding with other water molecules through a network of starch chains.

- Churning or Turning

  Leave space for overrun (air incorporation) in the machine. The ideal amount of air volume added into the mix is 35%, giving a stable, soft and creamy ice cream.
  The air is only incorporated between +4ºC and –4ºC.
  The mix should not be in the machine for more than 15 mins.

- Themomix

  Is undoubtedly the best way to make ice cream mixes. Much more preferable to homogenise than a stick blender in a pan over heat.

Contacts:

Dextrose -	Wild Harvest	020 7498 5397
Stab 2000 -	Chef 2 Chef	01344 874266
Velvet Gel -	Wild Harvest	020 7498 5397
Natracol -	CCL	01260 223284
Pro-sorbet -	Wild Harvest	020 7498 5397
Super Neutrose -	Chef 2 Chef	01344 874266

All about sugar

Glucose

This is a simple sugar with one molecule, with well-known properties. In powder form it offers a smooth texture to ice-creams and sorbets. In syrups, it retards crystallization. It’s sweetening power: 50.

Saccharose

The scientific name for caster sugar, it is composed of two molecules (glucose and fructose). It can be very coarse, called granulated sugar, down to very fine, called icing sugar. Its sweetening power: 100.

Inverted sugar

This is the transformation of saccharose by hydrolysis (breaking down by water)
Properties: makes ice creams smooth, keeps the softness of pastries, strengthens the flavour of fruit and guarantees the stability of taste. Its sweetening power: 110-130.

Honey

This is the ancestor of sugars, a natural inverted sugar that is lightly coloured and has the same properties as its ‘chemical’ cousin, but its particular flavour may not be appropriate in certain desserts. Its sweetening power: 130.

Dextrose
This white powder with low sweetening power is pure glucose obtained by the hydrolysis of corn starch. It is used to adjust the colour of a biscuit or cake, extend the freshness of industrial pastries, enhance the flavours of sweet drinks and improve the smoothness of an ice cream. Its sweetening power: 75.

Fructose
This is also called levulose, and exists naturally in certain fruits and vegetables. This is the sweetest of all sugars. When refined it gives crystals or syrup. Its sweetening power: 173.

Isomalt
This is a sweetening ingredient obtained by the hydrolysis of sugar and then hydrogenation. It is the lightest of all sugars and may be eaten by a diabetic. Its sweetening power: 50.

Sorbitol
This is obtained by the hydrogenation of glucose and exists in liquid or powder form. Properties: allows texture to be controlled, stabilizes the humidity of biscuits and cakes and slows down the stalling process of preparations that contain fat. Its sweetening power: 60.

Muscovado sugar
Extract of sugar cane from the Philippines, this dark brown, humid, slightly sticky sugar has a very pronounced flavour.

Sweetener
Used to give a sweet taste, it can be of natural origin or synthetic. Natural sweeteners are present in fruits, honey, vegetables etc. and may or may not contain calories. Artificial sweeteners have ‘mass’ when they dilate in the digestive tract, giving a sensation of fullness or are ‘intense’ when they have high sweetening power (20 to 400 times greater than that of saccharose).

Brix
This is the quantity of soluble content expressed in the saccharose equivalent. This soluble content consists of sugar, mineral salts, organic acids, soluble fibres etc.

Slow cooked fillet of beef

Select a good piece of well hung fillet and ask your butcher for 'centre cut' – this means without head and tail and comprises of only the body of fillet.

Heat a pan with a little corn oil and carefully place in the fillet of beef, browning on all sides. This operation should take no more than 2 minutes.

Remove from the pan and allow to cool.

Wrap the fillet in clingfilm and place into an oven already pre-set at between 55° & 60° C.

The process behind this cooking is that for a medium rare 'doneness' the core temperature will be between 57° and 59° C. Therefore to achieve this preferred cooking degree throughout the fillet the oven should be set at between 55° to 60° C.

It will take approximately 50-60 minutes for the temperature to penetrate to the core of the fillet. This will then last for an extra 1-1.5 hours after this time (obviously the longer in the oven the more it will dry).

Remove from the oven.

Re-seal the fillet in a hot pan – this should take no more than 30 seconds. There is no need to rest the meat as the proteins have not shrunk to a degree that require it to be rested.

Carve and serve with desired accompaniments and sauces.

Alternatively, allow to cool and you will have the best roast beef for sandwiches.