GELATIN SUMMARY

What is gelatin made of?

Gelatin is made primarily from animal collagen and bones (generally from pigskin, but also from cattle sources).

Uses of gelatin and its properties

A. It has a variety of uses within the food industry, but also other industries such as pharmaceuticals and cosmetics manufacturing.

B. Important properties of gelatin in food:

1. Gelation
   a) When added to warm liquids, the viscosity increases and forms a gel as the liquid cools.
   b) The gel is thermoreversible meaning it can be melted back to liquid and cooled to re-gel several times. Products containing gelatin can also be frozen.
2. Binding of water
3. Formation of texture
4. Use as a thickening agent
5. Formation and stabilization of emulsion
6. Formation and stabilization of foam

Bloom Strength

A. A scientific measurement of the gelling strength of a particular gelatin.

B. Named after Oscar T. Bloom, the inventor of the measuring instrument known as a gelometer.

C. Typical bloom strength for food applications varies between 125 – 250g.

D. The higher the bloom rating, the stronger the gel. Gelatins with the highest bloom number also tend to be the most expensive, however as their strength is the highest, less gelatin is required and therefore, premium products may be the most cost effective.

Varieties of gelatin

A. Powdered/ granular

1. Often packaged in individual packets
2. One packet = 7g/1/4 oz/2 ¼ tsp.
3. Powdered gelatin must be softened in liquid prior to using it to ensure even distribution. Soften in 5X its weight in cold liquid for 5 minutes
4. Color and odor are slightly more pronounced than in sheet/leaf gelatin
5. Difficult to determine bloom strength. Check with manufacturer for specifications.

B. Sheet/leaf gelatin

1. Most commonly used by pastry chefs
2. Typically available in three varieties:
   a) Vary by:
      Number of sheets per box
      Weight per sheet ranging from 1.7 g to 3.3 g
      Bloom strength
      Color and odor: Color and odor diminish with increases in bloom strength (more refined production process)
3. Softening sheet gelatin:
   a) Sheet gelatin may be added directly to warm liquids to dissolve.
   b) Gelatin sheets can be softened in cold water (5 times the weight of the gelatin) prior to adding to recipe ingredients. Chefs often “bloom” or soften gelatin in a bowl of ice water without measuring the liquid first and then squeeze the excess moisture out of the gelatin sheets prior to using them. This technique is less precise and increases the risk of too much

liquid being introduced into a recipe (altering the setting of the gel). By using 5 times the weight of the gelatin, the entire mixture can safely be added without any loss of quality.

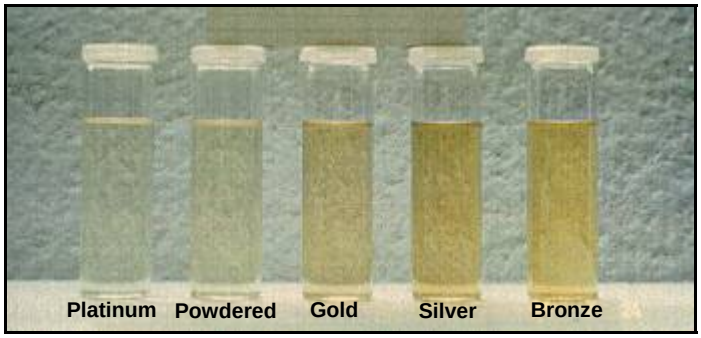
Using gelatin in the pastry kitchen

A. Ingredients which affect gelling:

1. Tropical fruits (e.g., pineapple, papaya, passion fruit) as well as melons, ginger, kiwifruit, and figs contain an enzyme that will destroy gelatin. These fruits must be heated (185F/85C) to kill the enzyme before using gelatin. Frozen fruit purees have been heat pasteurized and are ok to use.
2. Acids (vinegar, fruit juices, wine) with a pH below 4 can interfere with gelling. Strong acids and tannins in teas or red wine can cloud a jelly
3. Salt decreases gel strength
4. Sugars (except Fructose) increase gel strength
5. Milk increases gel strength
6. Alcohol Increases gel strength

B. Temperature - Care must be taken not to boil gelatin as it may burn and form lumps.

C. Color - The yellowish tint of most gelatins decreases as the bloom strength increases.



GELATIN CONVERSION

Bloom Strength

Platinum sheet gelatin = 250 bloom
Knox powdered gelatin = 225 bloom
Gold sheet gelatin = 200 bloom
Silver sheet gelatin = 160 bloom
Bronze sheet gelatin = 140 bloom

Gelatin Sheet Weights

1 Platinum sheet = 1.7 grams
1 Gold sheet = 2 grams
1 Silver sheet = 2.5 grams
1 Bronze sheet = 3.3 grams

Conversions

Formula:
The weight of the known gelatin x square root (known gelatin bloom/unknown gelatin bloom) = weight of unknown gelatin

Example:

If your recipe normally calls for 5 sheets of gold sheet gelatin and you need to substitute bronze sheet gelatin, you would calculate:

5 sheets gold gelatin x 2 grams each = 10 grams
10 x square root (200 bloom/140 bloom) = ? bronze gelatin sheets
10 x square root of 1.43 = ? bronze gelatin sheets
10 x 1.20 = 12 grams bronze gelatin sheets

Additional Info

1 teaspoon of powdered gelatin weighs 2.33 grams
1 Tablespoon of powdered gelatin weighs 7 grams
For each gram of any gelatin, bloom in 5 grams of cold water to maintain consistency in recipes.

Knox powder weight	x	0.95	=	Platinum sheet weight
Knox powder weight	x	1.06	=	Gold sheet weight
Knox powder weight	x	1.19	=	Silver sheet weight
Knox powder weight	x	1.27	=	Bronze sheet weight
Platinum weight	x	1.05	=	Knox powder weight
Platinum weight	x	1.12	=	Gold sheet weight
Platinum weight	x	1.25	=	Silver sheet weight
Platinum weight	x	1.34	=	Bronze sheet weight
Gold weight	x	0.94	=	Knox powder weight
Gold weight	x	0.89	=	Platinum sheet weight
Gold weight	x	1.12	=	Gold sheet weight
Gold weight	x	1.20	=	Bronze sheet weight
Silver weight	x	0.84	=	Knox powder weight
Silver weight	x	0.80	=	Platinum sheet weight
Silver weight	x	0.89	=	Gold sheet weight
Silver weight	x	1.07	=	Bronze sheet weight
Bronze weight	x	0.79	=	Knox powder weight
Bronze weight	x	0.75	=	Platinum sheet weight
Bronze weight	x	0.84	=	Gold sheet weight
Bronze weight	x	0.94	=	Silver sheet weight