WEISHARDT GROUP

PROPERTIES OF GELATINE

Gelatin has multiple functional properties.

Solubility:

Gelatin swells in cold water and is completely soluble in hot water. A temperature of about 60°C is necessary in order to release the ordered structure of gelatin in its dry state.

Thickening ability:

Adding gelatin to a solution increases its viscosity.

Gelling ability:

Gelling makes it possible for a product with a liquid structure to turn into one with a gel structure. The gel state looks similar to the solid state but differs by its instability.

A gel obtained from gelatin is thermoreversible. This is certainly its most interesting property. When a gelatin solution is cooled, the viscosity increases progressively and passes from a sol to a gel. On the other hand, if the gel is heated, it dissolves and once again becomes a solution.

Unlike most hydrocolloids of polysaccharide origin, gelatin gels independently of pH and without the need for other reactive agents.

The sol/gel conversion is reversible and can be repeated. However, a succession of heating and cooling processes may cause gelatin to deteriorate to some extent.

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Film-forming property:

When a gelatin solution is spread in a thin layer over a surface and passes from a sol to a gel, it forms a film. This property has been exploited for the manufacture of hard and soft capsules and in microencapsulation.

Emulsifying ability:

The emulsifying ability of gelatin makes it possible to obtain, through mashing, a homogenous dispersal in a mixture of constituents which are not normally miscible, such as, for example, a mixture of oil and water.

Aerating ability:

Gelatin's aerating properties make it possible to increase the volume of a mixture of ingredients by a considerable proportion, on condition that the mixture contains water. The gaseous phase is one in which air bubbles created by beating the mixture are captured in the microbeads of gelatin and maintained in a state of stable dispersion.

Stabilising ability:

Gelling colloidal solutions and emulsions makes them stable. The stabilising power of gelatin is often greater than that of other natural polymers.

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Gelatin fulfils numerous other functions, such as:

- coating
- texture improvement
- protecting
- preventing syneresis
- glueing

Very often it performs more than one function at a time.

Certain gelatins, obtained through a special manufacturing process, are cold-soluble. Two types are marketed, the gelling gelatins which have similar properties to gelatins which are heat-soluble and hydrolysed gelatins which have no gelling power.

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