cuisineinnovation
Science et technologie au service de la création culinaire

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Soybean lecithin (E322)

Culinary data

Soybean lecithin, used preferably at a rate of 1g for 100g of final preparation or less, is an emulsifier.
It enables:

- to aerate the preparations by giving them a foamy aspect,
- to stabilise hot or cold emulsions.

Technological data

Dissolution

The amount usually used ranges from 0.2 to 1 g for 100g of final preparation in the case of emulsions, and from 0.3 to 0.2g for 100g of final preparation in the case of foams.

Sensory characteristics

Imparts no taste to the culinary preparations at low doses.

Keeping

At temperatures comprised between 15°C and 40°C.

Toxicological data

- GMO free.
- Can not be consumed by person with soya allergies.
- No acceptable daily intake level.
- Lecithin, being a natural constituent of the cells, is used by the body as such or after metabolisation.

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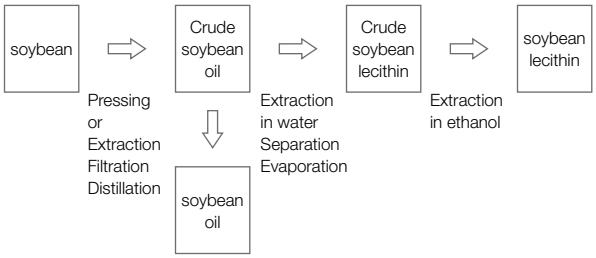
Scientific data

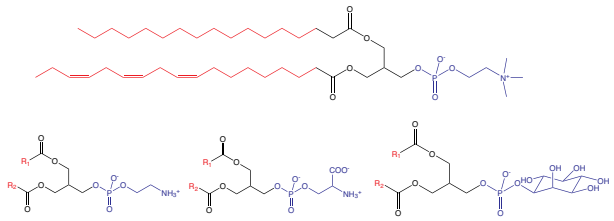
Origin

Lecithin is a constituent of the cell membranes of living organisms. It stabilises and softens the lipid bilayers the membranes are constituted of. Alimentary grade lecithin is obtained during the production of soybean oil.
It is separated into two fractions by an extraction in ethanol. The ethanol insoluble fraction stabilises water in oil emulsion, whereas the ethanol soluble fraction stabilises oil in water emulsion. It is this later that is sold.



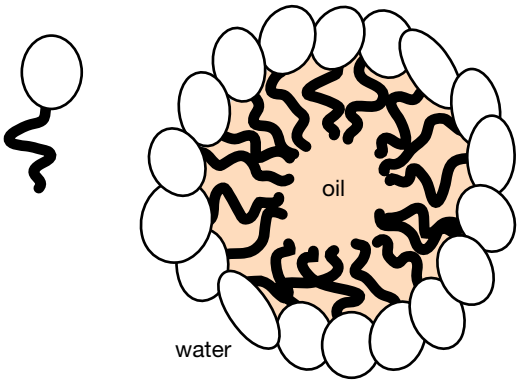
Chemical composition

Under the name of lecithin is covered a large range of surface active molecules, also called phosphatidylcholines. They vary by the nature of the fatty acid they are constituted of. Theses fatty acids can be from various lengths, present or not insaturations varying in number and in positions.



Examples of molecules form the lecithin's family

The surface active properties from the soybean lecithin come from its being constituted of two parts:
one is attracted to water (hydrophilic) and the other is repelled by water (lipohilic or hydrophobic).
In the culinary preparations, the soybean lecithin's molecules will sit in the following manner: the hydrophilic part in water, and the lipophilic part out of water (either in oil or fat in the case of an emulsion, or in air in the case of a foam).



Positioning of the soybean lecithin between water and fat

Informations from Beltz H.-D., Grosch W., Schieberle P., *Food Chemistry*, 3rd Edition, Springer, **2004**, 177-181.