

## Xanthan gum (E415)

### Culinary data

Xanthan gum is a thickener with a neutral taste. It enables:

- thicken a sauce usually obtained by addition of egg, fat or flour,
- to put herbs or spices in suspension,
- to give a ketchuplike texture, i.e. viscous at rest, but fluid when eaten or beaten,
- to avoid losses of water allowing an easier success of macaroons, soufflés, meringues or whipped eggs,
- to stabilize ice cream.



### Technological data

#### Dissolution

Xanthan gum is soluble in water, even at cold temperature. But the solubility of xanthan decreases in the presence of ethanol. It's advised to add the xanthan gum in the preparation by mixing and let it rest for a while. If a foaming effect is not expected, avoid to incorporate too much air.

The amount usually used ranges from 0.1 to 0.5g for 100g of final preparation.

#### Gel setting

Xanthan gum, when used in combination with other gums (guar, konjac, locust) enables to obtain elastic gel. As xanthan gum may contain enzyme digesting cellulose, it is recommended to avoid using it with cellulose or its derivatives.

#### Effect of the acidity

Xanthan gum is insensitive to acidity between pH 2 and 13.

#### Sensory properties

Neutral in taste

#### Preservation

Preparations thickened with xanthan gum are relatively stable in time in terms of texture.

#### Freezing

Preparations thickened with xanthan gum can be frozen.

#### Storage

Store in a closed hermetic packaging, in a cool and dry place.

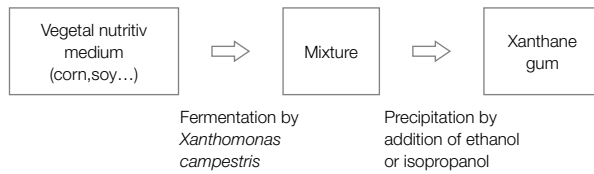
### Toxicological data

- Gluten free.
- No acceptable daily intake level.
- The used quantity shouldn't exceed the concentrations used to obtain the desired effect.

## Scientific data

### Origin

Xanthan gum is naturally produced by the bacteria *Xanthomonas campestris*. This production is exploited industrially to produce the gum by fermentation.



*Xanthan gum's production by fermentation in the presence of *Xanthomonas campestris*.*

### Chemical composition.

Xanthan gum is a polymer (long molecules made by attaching one after the other a large number from one or several small molecules) made by the bacteria *Xanthomonas campestris*. It is constituted of various carbohydrates (i.e. sugars in chemistry's words, with a meaning not restricted to table sugar). The ketchuplike properties come from the shape of the molecules.



The ketchup effect on molecular level: at rest, the "hairs" of the molecules interpenetrate making the solution viscous, but the solution is forced to move, the "hairs" lie down, and the molecules can easily move apart, and the fluidity increases.

Information from:

- Beltz H.-D., Grosch W., Schieberle P., *Food Chemistry*, 3<sup>rd</sup> Edition, Springer, 2004, 333
- Lersche M.(Ed.) *Texture – a hydrocolloid recipe collection*, (v.2.2, 2008)