

## **Thickening Agents**

### **Powdered Gelatin**

Powdered gelatin is a gelling agent typically derived from animal sources. Gelatin allows liquids to set into a gel-like consistency once cooled. Before using powdered gelatin, it must be hydrated with cold water (usually in a 1:4 ratio). The gelatin should be soaked in this way to ensure it absorbs moisture before dissolving in the liquid. Typically, 10 minutes of soaking is sufficient. Once the gelatin has swollen, add it to a hot liquid and stir to help it dissolve. The mixture will set into a gel consistency when cooled at room temperature or in the refrigerator.

### **Gelatin sheets**

Gelatin sheets, unlike powdered gelatin, are a type of gelatin in thin, transparent sheets. Soak the gelatin sheets in cold water for about 10 minutes. This allows the sheets to soften. Once the gelatin sheets have softened, add them to the liquid. The sheets will dissolve quickly in the liquid and form a gel like consistency.

### **Agar Agar**

Agar agar is a natural gelatin derived from seaweed and serves as a plant-based alternative. It is commonly used in vegan and vegetarian recipes. Like gelatin, agar agar transforms liquids into a gel, but unlike gelatin, it dissolves in hot water and solidifies as it cools.

### **Xanthan Gum**

Xanthan gum is a polysaccharide produced through a bacterial fermentation process, commonly used to thicken liquids. It is especially used in gluten-free recipes because it helps strengthen the dough and makes it more elastic. It can also be used as a thickening agent in sauces and soups. Xanthan gum can clump when mixed with cold liquids, so it's helpful to first mix it with a small amount of liquid before adding the rest of the liquid.

## **Pectin**

Pectin is a polysaccharide naturally found in fruits and plants. It is commonly used in the production of jams, marmalades, and gels. Pectin works by combining with sugar to thicken liquids. It is naturally present in certain fruits (such as apples and citrus), but it can also be commercially extracted. Pectin is added when the liquid begins to boil. It dissolves in hot liquids and forms a gel-like consistency.

## **Starch**

1. **Cornstarch:** Cornstarch is the most commonly used starch for thickening liquids. When added to cold liquids and boiled, it thickens the mixture and is typically used in sauces, puddings, and soups.
2. **Potato Starch:** Potato starch is also used as a thickening agent but provides a smoother, finer texture compared to cornstarch. It remains stable at high temperatures and is commonly used in baked goods and some desserts.
3. **Wheat Starch:** Wheat starch, like cornstarch, thickens liquids but is less resistant to temperature changes. Therefore, it is often used in recipes that require short cooking times.
4. **Tapioca Starch:** Tapioca starch is particularly used in desserts and some soups. It becomes transparent and forms a gel when mixed with boiling liquids, making it popular in Asian cuisine.
5. **Modified Starch:** Modified starches are used in some industrial food preparations and have thickening properties. These starches are often processed to dissolve more easily in liquids and provide a more stable consistency.

**Starches Not Used or Lacking Thickening Properties:** Some starch types (such as rice starch and certain local starches) are used mainly in desserts or pastries but do not directly serve as thickening agents for liquids. These starches are primarily used in baked goods to strengthen the structure.

## Roux (Flour + Butter)

Roux is a mixture used to thicken liquids, typically made from flour and fat. It is a technique derived from French cuisine and forms the base of many different sauces and soups. Roux is generally classified into three main types: white, yellow, and brown. The color of roux depends on the cooking time and how much the flour is toasted.

1. **White Roux:** White roux is made by lightly toasting the flour for a short period. This type of roux is commonly used in sauces, soups, and cream-based dishes. The purpose of white roux is to thicken liquids and achieve a smooth texture.
2. **Yellow Roux:** Yellow roux is made by toasting the flour for a longer period. This type of roux is generally used in meat or vegetable dishes. Yellow roux provides a deeper flavor and is ideal for thickening colorful dishes.
3. **Brown Roux:** Brown roux is made by toasting the flour for an even longer time. It is the darkest in color and flavor. Brown roux is used in dishes such as meat sauces. This type of roux adds a rich taste.

Roux is typically mixed with warm or hot liquids. The liquid should not be boiling before adding roux, as hot liquids can cook the roux too quickly and cause clumping. Roux is used in soups, sauces, stews, and various other dishes to serve as a thickening agent.

## Thickening Agent Product Quantities (For 100 Gr Liquid)

Product	Light Thickness	Medium Thickness	thick consistency
Powdered Gelatin	2 Gr	4 Gr	6 Gr
Gelatin Leaves	1.5 Gr	2.5 Gr	5 Gr
Agar Agar	0.7 Gr	1.5 Gr	2 Gr
Xanthan Gum	0.6 Gr	1.2 Gr	2.8 Gr
Pectin	1.5 Gr	2.5	4 Gr
Cornstarch	1.5 Gr	3 Gr	5 Gr
Roux	4 Gr Flour + 4 Gr Butter	8 Gr Flour + 8 Gr Butter	12 Gr Flour + 12 Gr Butter

## **General Risks and Recommendations**

**Dosage and Usage Amount:** Thickening agents are safe when used in the correct dosage. However, excessive use can have negative effects on both taste and health. For example, substances like xanthan gum or agar agar can be effective in very small amounts. If used in excess, they can cause the liquid to become overly thick, which can affect the taste and texture of the dish.

**Vegan and Vegetarian Alternatives:** Animal-based thickening agents (such as gelatin) are not suitable for those following vegan or vegetarian diets. However, plant-based alternatives such as agar agar, pectin, or xanthan gum are good options for these diets.

**Allergies and Sensitivities:** Especially xanthan gum, some thickening agents can cause allergic reactions or sensitivities in certain individuals. These reactions typically manifest as digestive issues (such as gas, bloating, or diarrhea). Therefore, it is recommended to observe how the body reacts before trying a new thickening agent.

**Children and Pregnancy:** Children or pregnant women should be cautious before consuming certain thickening agents. Especially in processed food products, additives and preservatives may have a greater impact on these groups. Therefore, it is recommended to prefer natural and organic alternatives.

**Natural Thickening Agents:** Some natural thickening agents, such as agar agar, pectin, corn starch, and potato starch, are generally healthier because they do not contain processed food additives. Using these natural alternatives is not only more beneficial in terms of nutrition, but also helps reduce the likelihood of allergic reactions in the body.