

## Modernist Ingredient Ratios

Thanks for letting me help you in the kitchen! If you have any questions don't hesitate to contact me. For more information and techniques, visit me at [ModernistCookingMadeEasy.com](http://ModernistCookingMadeEasy.com) - Jason

### Agar

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Disperses at any temperature and bring above 212°F for 3-5 minutes to hydrate. Gel sets in minutes at 104-113°F and melts at 175°F.

### Foams

Light: 0.3-1.0%  
Dense: 1.0-2.0%

### Gels

Soft: 0.2-0.5%  
Firm: 0.5-3.0%  
Fluid: Blend a 0.5-2.0% gel

### Carrageenan, Iota

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Disperse in cool liquids and bring above 158°F to hydrate. Gel sets in several hours at 104-158°F depending on calcium content. Melts about 9-18°F above setting temperature.

### Thicken Dairy

Minor: 0.02-0.04%

### Gels

Regular: 0.75-1.5%  
Dairy: 0.4-1.5%  
Fluid: Blend a 0.1-1.0% gel

### Foams

From 0.2-1.0% fluid gel

### Carrageenan, Kappa

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Disperse in cool liquids and bring above 158°F to hydrate. Gel sets in several hours at 95-140°F depending on calcium content. Melts about 18-36°F above setting temperature.

### Gels

Dairy: 0.3-1.5%  
Fluid: Blend a 0.3-1.0% gel

### Gelatin

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Bloom (hydrate) in cold water then disperse in liquid above 122°F. Gel sets below 86°F in several hours and melts above 86-104°F. One ¼ ounce / 7.2 gram package of Knox powdered gelatin equals 4 sheets. "Sheets" below are per 100 grams of liquid.

### Gels

Soft: 0.5-1.0% / 0.3-0.5 sheets  
Hard: 1.0-6.0% / 0.5-3.3 sheets  
Marshmallow: 10% / 5.5 sheets

### Foams (from fluid gels)

Light: 0.4-1.0% / 0.2-0.55 sheets  
Dense: 1.0-1.7% / 0.55-0.9 sheets

### Lecithin

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Disperse and hydrate instantly in any temperature. To foam, blend air into liquid with immersion blender or whisk until frothy. When stabilizing, 0.1-0.4% xanthan gum can also be added.

### Foams

Airs and froths: 0.25-1.0%

### Stabilizing

Emulsions: 0.3-1.0%

### Maltodextrin

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Disperse into liquid fat at room temperature by whisking or stirring. Because of high ratios, using more flavorful fats are ideal. Maltodextrin can be added gradually until the desired consistency has been reached.

### Thickening Fats

Pastes: 30.0-45.0%  
Powders: 45.0-60.0%

### Methylcellulose

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Methylcellulose varies greatly based on the specific type used, please check the packing or online for exact measurements. Can be dispersed in either hot liquids or hot and cold, depending on the type, and hydrates below 59°F over an hour or two. Reminder: methylcellulose sets as it heats and melts as it cools. Sets above 122-160°F and melts below 68-86°F. Foams are typically made by whisking in a standing mixer.

### Foams

Regular: 0.75-2.0%

### Gels

Regular: 0.25-3.0%

### Sodium Alginate

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Disperses and hydrates quickly at any temperature. Sets at any temperature in the presence of calcium and melts above 266°F. Typically used with calcium lactate or calcium chloride for spherification. The "Base" below is the flavored liquid you are spherifying. In direct spherification calcium chloride can be substituted for the calcium lactate.

### Reverse Spherification

Calcium Lactate Base: 1.0-3.0%  
Sodium Alginate Bath: 0.4-0.5%

### Direct Spherification

Sodium Alginate Base: 0.5-1.0%  
Calcium Lactate Bath: 0.5-1.0%

### Xanthan Gum

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Disperses and hydrates quickly at any temperature. At greater concentrations it can add a slimy mouthfeel. When thickening, can be added gradually until the desired consistency has been reached.

### Thickening Liquids

Thin Sauce: 0.1-0.3%  
Thick Sauce: 0.3-1.0%

### Foams

Froths: 0.2-0.8%

### Stabilizing

Emulsions: 0.1-0.8%  
Purees: 0.2-0.4%

### Other Ingredients

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#### Gellan

Gels: 0.5-1.25%

#### Guar Gum

Thickening: 0.1-1.25%

#### Gum Arabic

Thickening: 1.0-45.0%

#### Mono- and Diglycerides

Emulsifying Fats: 0.5-2.0%  
Thickening Fats: 2.0-10.0%

#### Ultra-Sperse

Thickening: 0.2-5.0%

#### Ultra-Tex

Thickening: 1.0-8.0%

#### Versawhip

Foams: 0.5-2.0% w/ xanthan gum