



TECHNICAL APPLICATION
INFORMATION



**H&F Pectins for Spicy Condimental
Applications**

H&F PECTINS for SPICY CONDIMENTAL APPLICATIONS

Merrily smacking Jule dipped her sausage into ketchup at the last barbecue and did not notice her Mom's face getting more and more annoyed as the ketchup dripped onto her pretty new t-shirt again and again. This annoyance could have been avoided: H&F has developed special pectins which influence and enhance texture and product typical flow behavior of spicy sauces such as ketchup barbecue sauce or chutneys.

Especially in the field of delicatessen there are spicy sauces and jellies such as aspic or balsamico jellies, too, obtaining their consistency by tailor-made pectins. In doing so, the application of H&F pectins offers decisive advantages. Pectin is a natural constituent of fruits and vegetable; with that the added pectin supports fruit own pectin of tomatoes, mangos or onions of these products. The use of pectin provides a smooth and shiny fruit typical texture, is neither slimy nor masking and results in products with fruity and spicy flavor without any off-taste.

KETCHUP is a condiment sauce originally hailing from East Asia. The first recipe for "English ketchup" was published in a guidebook for housewives in 1727. Similar to a fish sauce, anchovies, spring onions, white wine vinegar, white wine and different spices were listed. Thus ketchup had not been related with tomatoes originally and is not similar to ketchup as it is known today.

With promulgating British cookery books ketchup found his way to the US. Then, in 1812, the first recipe for such a condiment sauce based on puréed tomatoes has been published.



hed.

Today ketchup consists of tomato purée, sugar, vinegar, table salt and spicery.

For high quality tomato ketchups there are sophisticated demands regarding their rheological behavior. Especially the formation of yield stress, thixotropic flow behavior with high ability for regeneration as well as the prevention of syneresis are relevant.

Products with yield stress do not start to flow until the outer acting forces exceed the inner structure force. Underneath the yield stress the products show an elastic behavior which means, in terms of rheology, they behave like a solid.

Ketchup produced with Pectin Classic AD 501 forms a yield stress providing an elastic-viscous, spoonable and smooth texture with bril-

liant surface.

Thixotropic flow behavior is a time dependent flow behavior at which initially the structure (viscosity) is degraded under shear stress caused by e.g. stirring or shaking. Then, in a subsequent phase of recovery and regeneration respectively, this original structure is completely re-formed again. The time until reaching again the original texture can be different. With Pectin Classic AD 501 a very high ability for regeneration is obtained so that the original consistency of the ketchup is reached again already after short time.

Another advantage of using Pectin Classic AD 501 for the production of ketchup is the formation of an intense mouthfeel and the reduction

of syneresis.

The texture of ketchup produced with Pectin Classic AD 501 is smooth and full-bodied.

Even after repeated shaking the product shows



Herbstreith & Fox KG	Recipe
<i>Tomato Ketchup</i>	
Pectin Classic AD 501	
Recipe 12g pectin (= 1,2%) 250g tomato purée, triple, approx. 36% TSS 230g sucrose, crystalline 450g water 70g vinegar, approx. 6% acid 25g table salt 0,5g paprika 0,5g white pepper Xml citric acid solution 50% to adjust the pH-value net weight: approx. 1040g output weight: approx. 1000g soluble solids: approx. 36% pH-value: approx. 3.5	Manufacturing A Mix pectin with approx. 100g sucrose (from total amount). B Prepare remaining ingredients, stir in mixture "A" and cook until final soluble solids content is reached. C Add citric acid solution to adjust the pH-value. D Filling temperature approx. 80°C. Ketchup produced with Pectin Classic AD 501 is characterized by a full-bodied texture with product-specific yield stress and thixotropic flow behavior and with excellent ability for regeneration.

no or only little syneresis.

BARBECUE SAUCE (also BBQ sauce) is a cold condiment sauce served to meat dishes. The name is derived from barbecue. Barbecue is a special cooking method at which large pieces of meat are slowly smoked in a cavity or special barbecue smokers at moderate temperature. Compared to ketchup, barbecue sauce is more spiced and consists mainly of tomato purée, onions, vinegar, mustard and spicery. Besides salt and pepper, for example garlic, cayenne pepper, Worcester sauce (named after

the English city Worcester) or chili sauce as well as smoke flavor are typical spices.

Regarding consistency barbecue sauce is usually slightly more low viscous than ketchup. With the addition of a suitable H&F pectin both texture and typical thixotropic flow behavior as well as formation of a yield stress can be influenced specifically.

With the H&F Pectin Classic AD 501 it is possible to manufacture products characterized by a full-bodied, viscous texture with yield stress and high ability for regeneration as

Herbstreith & Fox KG		Recipe
Barbecue Sauce		
Pectin Classic AD 501		
Recipe		Manufacturing
11g pectin (= 1,1%)		A Mix pectin and sodiumcitrate with sucrose.
170g tomato purée, approx. 36% TSS		B Stir mixture "A" into water and let boil until the pectin has completely dissolved.
45g mustard, approx. 21% TSS		C Add remaining ingredients and cook until final soluble solids content is reached.
90g sucrose		D Add citric acid solution to adjust the pH-value.
120g Herbasweet**, approx. 70% TSS		E Filling temperature 80°C
70g vinegar		
30g salt		
9g spicery mix*		
12g green pepper, cut		
480g water		Pectin Classic AD 501 provides a typical viscosity with yield stress and high ability for regeneration at the same time.
1.5g sodiumcitrate x 2H ₂ O		
Xml citric acid solution 50% to adjust the pH-value		
net weight: approx. 1040g		
output weight: approx. 1000g		
soluble solids: approx. 30%		
pH-value: approx. 3.7 – 3.8		

**spicery mix:*

1.9g paprika powder mild, 4.5g curry powder, 0.6g black pepper powder, 1.0g nutmeg,

1.0g paprika powder hot

*For colour adjustment we recommend the natural apple extract Herbarom***

***Herbasweet and Herbarom are products of Herbafood Ingredients GmbH.*

well as low tendency to syneresis.

CHUTNEY is a spicy sauce of Indian and East Asian origin with a texture similar to compote. Exotic fruits and spicery provide a savoury sweet-and-sour flavor. Chutney is derived from "chatni" which is Hindi and means "for licking". During the colonial period the Englishmen brought chutneys to Europe.

There is a variety of different chutneys. Vegetables, for example tomatoes, mangos and onions, and/or fruits are usually the basis. The sweet-and-sour flavor is provided by adding vinegar, lemon juice and sugar. Chutneys are flavored with salt and spicery, for example

ginger, cloves, chili, cinnamon, garlic and pepper.

With adding the suitable H&F pectin the desired consistency and flow behavior of the chutney can be reached.

Especially the low methylester, amidated Pectin Amid CF 020 is perfectly suited to provide a slightly gelled, viscous texture without an elastic gel character. With that the product obtains its typical compote like consistency with a high inner cohesion at the same time.

Additionally, the use of Pectin Amid CF 020 effects an even distribution of fruit or vegetable pieces in the product as well as a full-bodied mouthfeel without tendency to syneresis.

Herbstreith & Fox KG	Recipe
Onion Chutney	
Pectin Amid CF 020	
Recipe 160g pectin solution 5% (= 0.8%) 420g onions cut 280g sucrose, crystalline 30g Herbarom AF 24-SR* 20g balsamic vinegar 50g white wine vinegar 30g vegetable oil 5g salt 1g black pepper 0.5g tri sodium citrate x 2H ₂ O 4ml citric acid solution 50% to adjust the pH-value net weight: approx. 1000g output weight: approx. 1000g soluble solids: approx. 39% pH-value: approx. 3.5	Manufacturing A Manufacture of pectin solution see "Technical Information". B Roast onions with oil and approx. half amount of sugar and let caramelize. C Add sodium citrate, remaining amount of sugar, salt, pepper and Herbarom and heat to 90°C. D Add hot pectin solution and heat to 90°C. E Add vinegar and heat again to 90°C. F Add citric acid solution. G Cool down to 30 – 50°C under stirring. H Fill and pasteurise. Chutneys manufactured with Pectin Amid CF 020 show a compote like texture with high inner cohesion, even fruit distribution and low tendency to syneresis.

*Herbarom is a product of Herbafood Ingredients GmbH

Jellies made from meat or fish or also cold and salty dishes covered with a jelly layer are called **ASPIC** (German: Sülze). Aspic dishes are also called "brawn" or "galantine". The name aspic is derived from the French word "aspic" which means jelly, meat sauce or fond. The original source of this word, however, is not definitely clear. Either it goes back to the agis viper ("froid comme un aspic" = cold as a viper) or to the oil of the lavender tree (*lavendula spica*) equivalent to the property to be an important essence.

The production of aspic with gelatine is very drawn-out as gelatine does not gel until reaching very low temperatures and the gelling process itself takes a long time. At temperatures above 40°C the finished products tend to melt again. By contrast, pectins have a higher gelling and melting temperature, do not foam during the

cooking process, they need less time for gelation and are able to form elastic and cuttable gels with high temperature stability already after very short time.

Pectin Amid CF 025 is a low methylester, amidated pectin forming very firm and elastic gels in the production of aspic. Due to the high gelling and melting temperature the products require less time for gelation and can thus be processed very quickly. Furthermore, the high temperature stability has the advantage that the aspic can also be served at higher temperatures, for example combined with hot dishes, without melting. With Pectin Amid CF 025 it is possible to manufacture aspic jellies with firm set, elastic and stable texture. Special advantages for the processing of the products are first of all a quick gelation and a relatively high melting temperature resulting from the

Herbstreith & Fox KG		Recipe
<i>Aspic Jelly</i>		
Pectin Amid CF 025		
Recipe		Manufacturing
14g pectin (= 1.4%)		A Mix pectin, calcium lactate and maltodextrin.
1g calcium lactate		B Stir in mixture "A" into vinegar and pure broth and heat to approx. 95°C.
60g maltodextrin		C Filling temperature 60 – 70°C.
70g vinegar (5% acid)		D Store in a cool place.
885g pure broth		
net weight:	approx. 1000g	
output weight:	approx. 1000g	
soluble solids:	approx. 10%	
pH-value:	approx. 4,0 – 4,2	

addition of Pectin Amid CF 025.

BALSAMIC JELLY

Aceto balsamico or balsamic vinegar is originated in the Italian Province Modena or the Region Emilia Romagna, respectively. The main characteristics are its dark-brown colour and a sweet-and-sour flavor. The dark-brown colour results from storage in wooden drums or the addition of sugar couleour or the flavouring and colouring apple extract Herbarom**, respectively. For domestic application balsamic jelly is manufactured from balsamic vinegar and gelling sugar (2+1). There are a lot of applications for vinegar jelly in the homely kitchen.

With applying suitable pectins for the industrial production of balsamic jellies it is possible

to obtain products which are characterized

by an elastic and cuttable texture with only low tendency to syneresis over a wide soluble solids range. Especially with low methylester apple pectins of H&F such as Pectin Classic AF 702 elastic gels with intense mouthfeel and low tendency to syneresis can be manufactured.

Besides the examples named above there are many more spicy condimental products possible which can be manufactured with most different ingredients. For reaching a pleasant texture and the particular flow behavior H&F offers excellent pectins. You can contact us – we are pleased to support you with a tailor-made recipe.

Herbstreith & Fox KG	Recipe
<i>Balsamic Jelly</i>	
Pectin Classic AF 702	
<p>Recipe</p> <p>80g pectin solution 5% (= 0.4%) 350g sucrose, crystalline 450g balsamic vinegar* 140g water</p> <p>net weight: approx. 1020g output weight: approx. 1000g soluble solids: approx. 47% pH-value: approx. 3.2</p>	<p>Manufacturing</p> <p>A Manufacture of pectin solution see "Technical Information". B Mix balsamic vinegar, sugar and water and heat to 90°C. C Add hot pectin solution to "B" and cook until final soluble solids content is reached. D Filling temperature approx. 85°C.</p> <p>Balsamic jelly manufactured with Pectin Classic AF 702 shows an elastic, cuttable texture and tastes well to short fried meat, goose liver, cheese, tomato mozzarella, salads or fresh fruits such as strawberries or oranges.</p>

*can be replaced by regular vinegar + 2% Herbarom AF 24-SR** or 4% Herbarom AF 12**.

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TECHNICAL APPLICATION LABORATORY
 HERBSTREITH & FOX CORPORATE GROUP
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