From Fruits to Pectin
Production sites and channels of distribution
State-of-the-art manufacturing techniques and a wide product portfolio distinguish the performance of the H&F Corporate Group.

At the Neuenbürg (Baden-Württemberg) and the Werder/Havel (Brandenburg) production site – with an effective output of 7,000 tons of apple and citrus pectin – products for a whole variety of applications in the food and non-food industry are being produced.

The worldwide distribution of the H&F products requires a high degree of flexibility due to the different demands of the regional markets. Thus, H&F is – besides its subsidiaries in Hungary and the US – also represented by its own agencies in Spain, Italy and France in order to ensure customer focus and the extensive technical application service on site.

Other important representatives of H&F are its competent distribution partners around the world who are in constant discussions with their customers whose satisfaction is essential for H&F's success.

You would like to learn more? On the internet you will find further substantial information:
www.herbstreith-fox.de
From Fruits

to Pectin

Pectins from Herbstreith & Fox

The natural product pectin is an important structural element of all higher plants. It is mainly produced from apples, citrus fruits and sugar beets. As a universally applicable gelling and thickening agent pectin today is an especially important indispensable and additionally healthy ingredient of many products.

Due to its natural origin and versatile product parameters pectin is contained in many products, often without the customer realising that it is there.

The production process is very complex and technologically demanding. We show the way from harvesting the fruit, processing to the pectin raw material (pomace, dried citrus peels) as well as the production of the different pectins and byproducts and further to the many fields of application.

Herbstreith & Fox is worldwide known for producing high-quality pectins. Through an innovative company policy and years of experience we developed the most modern processes giving us the opportunity to produce on the highest possible level.

The certification of quality management according to FSSC 22000 and energy management according to ISO 50001 are just as important as preserving our environment in every possible way.
Apple harvest
At harvest time, large quantities of different types of apples are harvested.

Citrus harvest
The raw material four our Citrus Pectins comes mainly from Argentina, Mexico and Southern Europe.

Pressing
The fruits are brought from the apple and citrus plantations to the juice producers. There, the fruits are pressed and processed to apple juice respectively citrus juice.

Apple pomace/
Citrus peels
These are the terms used for the fruit residues which result from the production of fruit juices. Pomace and citrus peels are the raw materials for the pectin production.

Drying
Since apples and citrus fruits are only harvested during a few weeks in the year and pectin is being produced throughout the year, the gentle and careful drying of the fruit residues is important. Only carefully and gently dried apple pomace and citrus peels can be stored for a long period of time.

Storage
The dried pomace or peels are brought form the juice producer to the pectin producer. There, they are stored in special storage halls under constant control and are processed throughout the year.

Extraction
Pectin is a part of the plant cell wall and bound in it. By extraction it becomes soluble. The pectin containing watery extract is separated by pressing from the now pectin free pomace.

Cleaning the pectin extract
Filtration processes separate the insoluble components from the watery extract.

Concentrating
The filtered extract is concentrated to liquid pectin.

De-esterification/
Amidation
The pectin may be de-esterified and amidated if required.
Apple and Citrus Pectin

Our Products
Pectins, dietary fibres, sweetening, colouring and flavouring apple extracts are important components of many food and luxury food, cosmetics and pharmaceutical products.

Pharmaceutical Products

Cosmetics

Food

Packaging and delivery
After the pectin has passed all stages of the production process, it is suitably packed and delivered to the various industrial sectors.

Storage
During the detailed laboratory tests the pectin is temporarily stored.

Quality tests/Standardisation
The pectin is examined and put through various tests. Not each pectin is suitable for every kind of application, thus, pectins are standardised to gel strength, melting point, viscosity, acidified milk stabilisation etc., for example using a Herbstreith Pectinometer Mark IV. If all tests are passed the pectin is positively released for packaging.

Pressing
The pectin which is obtained by precipitation is now pressed.

Drying
After pressing the pectin is carefully dried.

Grinding
The dried pectin has a coarse structure. In grinding facilities it is carefully ground and then sieved.

Mixing
The ground and sieved pectin is homogeneously mixed in a special mixing facility.

Precipitation
Pectin is insoluble in alcohol. In a special process using alcohol the pectin is separated from its aqueous solution and washed.

Destillation
The alcoholic extract is distilled and the pure alcohol is returned to the precipitation cycle.

Alcohol

Fruit Extracts

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1a

**Washing I**
The apple and citrus fibres are washed in order to increase their dietary fibre content.

**Washing II**
After a second washing process with alcohol the fruit fibres have an extra high water binding ability.

**Drying**
The dietary fibres are dried after washing.

1b

**De-pectinised pomace/peels**
After extracting the pectin, the now de-pectinised pomace is dried and used in animal nutrition.

**Herbacel Classic Plus/Herbacel AQ Plus**
These dietary fibres are ground until a specified grain size is reached, sieved, homogeneously mixed and packed.

2

**Fruit Extracts**
The fruit extracts contain fruit sugars, fruit derived colouring and flavouring substances from what Herbarom und Herbasweet are obtained.

**Deionisation/Decolouration**
Applying active carbon and ion exchange fruit derived acids, minerals and colouring substances are removed to obtain a light coloured extract.

**Concentration/Deflavourisation**
The extracts are concentrated to Herbarom and Herbasweet.
Over 200 years ago, pectin was discovered as a water-soluble, gelling substance in fruit. However, it was not until the beginning of the 20th century that the possible practical uses of pectin in food production were identified. This was the beginning of the industrial production of gelling extracts from apple pomace – and with it also beginning of the history of Herbstreith & Fox. Thus, pectin, and especially the term “apple pectin”, has been closely linked with our company for more than 80 years.

The idea that was implemented by company founder Hermann Herbstreith in Wolfzennen/Eriskirch on Lake Constance in 1934, was revolutionary and could not be more topical today: using pectin extracted from apple pomace, a purely natural product, for the food industry. In an old distillery, the researcher and pioneer installed the first drying plant for the pomace from the fruit juice extraction presses in the Lake Constance region, thus laying the foundation for the success story of Herbstreith & Fox Corporate Group.

Today, highly specialised pectins are obtained in particular from apples, citrus fruits and sugar beet.

The various pectin types are standardised in accordance with their respective applications and are used in many areas of the food and pharmaceutical industries, as gelling and thickening agents as well as stabilising agents or dietary fibre.

**Applications:**
- Jams, marmalades and other fruit spreads
- Gelling sugar, gelling powder and liquid gelling agents for domestic use
- Milk, soy and oat products; fruit preparations, acidified milk drinks, yoghurts and milk desserts
- Confectionery, gum and jelly products
- Bakery products: fruit fillings, baking-stable fruit preparations and glazes
- Beverages and sorbets
- Delicatessen: gourmet sauces and ketchup
- Other food and non-food applications (cosmetics, pharmaceutical products, animal feed etc.)