

# *Wine Filtering Solution*

Candle kieselguhr filter FKS for wine

**BF**

**BÍLEK FILTRY**

## **Applications:**

- ▶ Rough Clarification
- ▶ Polishing Clarification
- ▶ Fine Filtration
- ▶ Must Filtration



# FKS FILTRATION



**Advantages of FKS** From minor wine makers up to large manufacturing plants, FKS helps the wine producers make the top-quality wines while respecting the individual approaches of particular technologists to filtration. FKS is a high-quality filtration system that provides the wine manufacturers with the following key advantages:

Maximum effectiveness

**The strongest point** of the candle kieselguhr filtration. FKS offers an excellent cost-to-quality ratio to meet the related requirements. There is no need of compromising. FKS offers a solution to improve the filtrate quality and optimize operating costs.

Gentle filtration to utmost extent

**Flavor and color are maintained or improved** The kieselguhr works as a natural filtering screen, without making use of the zeta potential. FKS relieves the wine of only unwanted turbid-making particles, not capturing the particles like molecules or ions that make the wine fully valued.

Wide spectrum of applications

**The rough, polish, fine filtration** of wine and must dispenses a myth that a rough filtering can only be carried out on kieselguhr. A kieselguhr filter of candle type is able to treat the wine for a membrane filtration.

Much lower operating costs

**Operation is 10-times to 50-times cheaper** than with filters of other types. The kieselguhr ranks itself among the cheapest wine-filtering methods, allowing the filtering cost reduction down to a mere minimum whenever used. Due to the chemical resistance of kieselguhr, the candle filter is often used to regenerate the sanitizing agents, extending thus their service life and increasing their efficiency.



„Following the FKS filtration, the wine is richer and more flavorful than after a conventional filtering on sheet filter.“

Michal Hruška

Balíček - Hruška winery,  
Jalubí, Czech republic

## Higher productivity

**Less time-consuming** thanks to high capacity and capturing ability of the filter. This implies less number of filtering cycles and shorter filtering, resulting in time savings and more responsive wine shipment onto the customers' tables.

## High reliability

**More reliable filtration** due to fixed stainless steel candles onto which the kieselguhr is pre-coated. There is no risk of impurity and kieselguhr infiltration into the wine once filtered. This benefit will allow you to maintain the constant flow rate, regardless of pressure growth during the filtration.

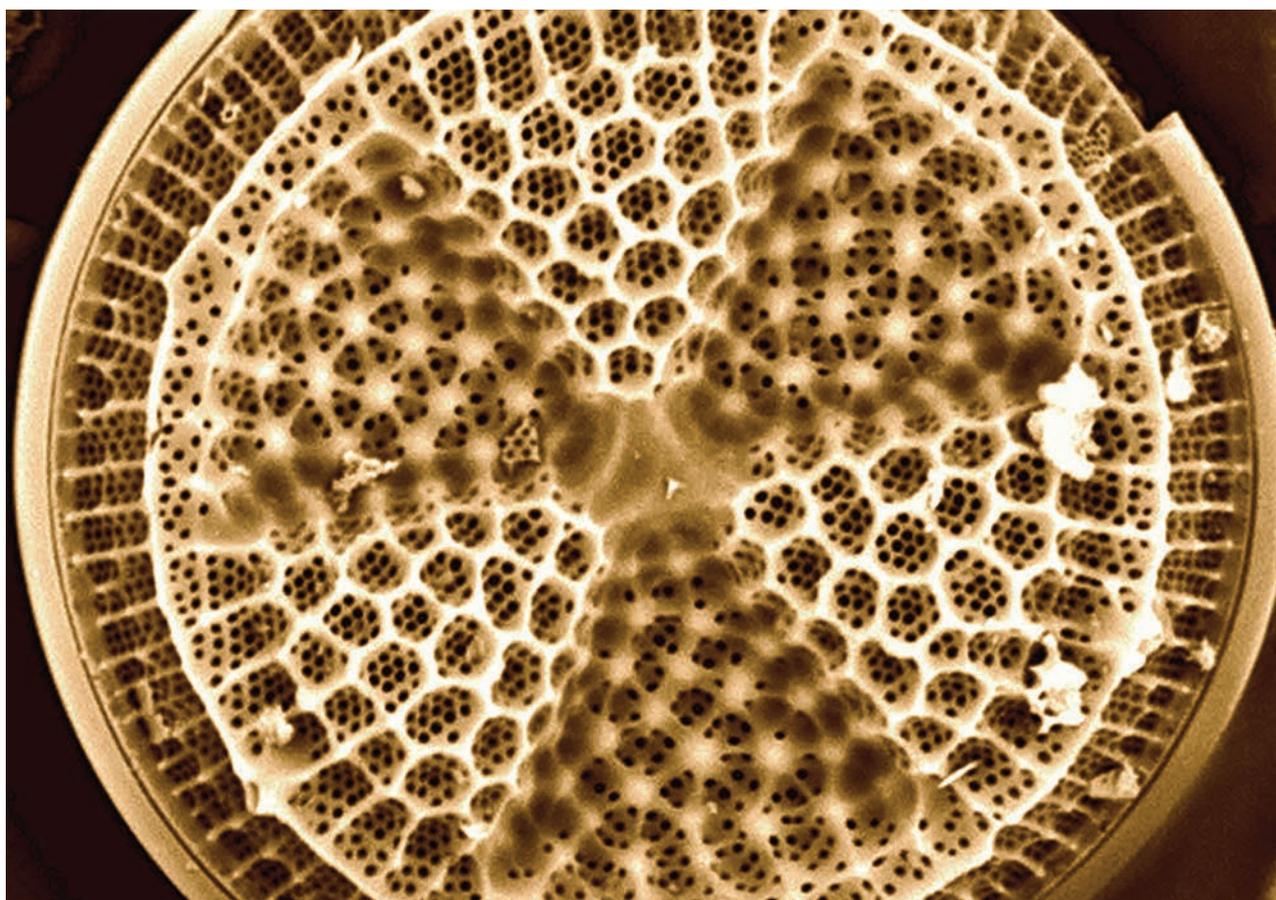
## Quality

**We are keeping track of every detail** ever striving to achieve utmost simplicity of the equipment in order to avoid breakdowns. This approach proved to be correct.

## Better quality of your wines

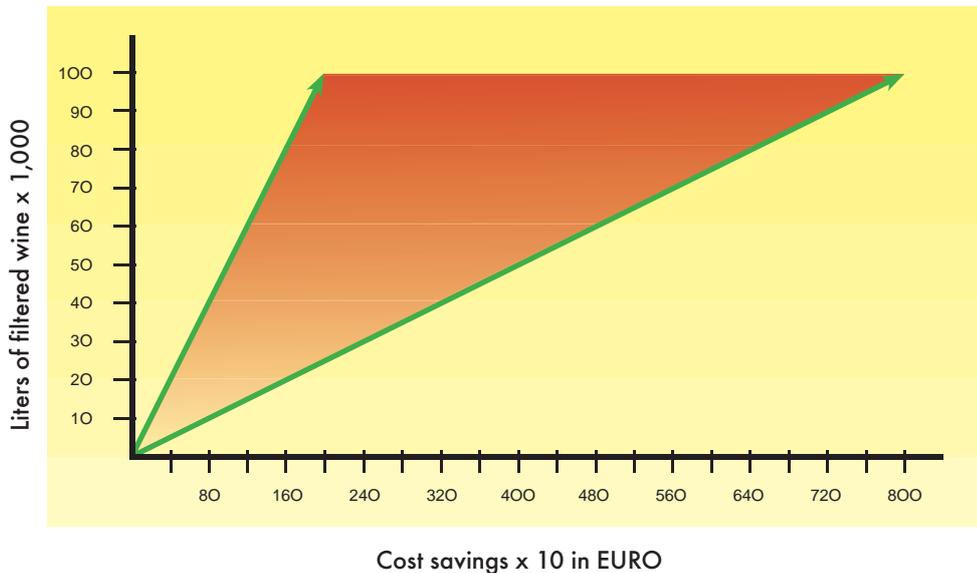
### Why is the kieselguhr-based filtration more gentle to wine?

This is because of the size of pores in kieselguhr. These pores across which the wine flows during filtration are tiny enough to be able to separate most turbid-making particles (so-called "mechanics", sized from about tenths of microns), but being also large enough to leave the desirable dissolved substances (their molecules or ions) in wine. In other words, the kieselguhr filtration is a mere mechanical filtration, based on a screen, not working with any zeta potential. It therefore does not destroy the wine's "inner fill", a decisive factor of the wine's organoleptic nature and richness. This is why you will achieve better results with an FKS filter than with the use of some other filter materials of higher retention types that can have an adverse effect on the wine.



A microscopic view of the kieselguhr (diatom) porous structure which acts as a screen during filtration

## Cost savings when matched against the sheet filter



\*The diagram reflects the wine filtration cost savings during the actual operation. The resulting savings depend on the winemaking technological processes.

*“ One of the strongest points of the F3 filter (multifunctional FKS) is in the operating costs. I’d figure out the savings as more than 90 % ”* František Foretník, winery Šardice, CZ

*“ The FKS filter is the most widely used machine in our factory – it saves us 4 euro cents per liter of wine ”* František Mádl, winery Velké Bílovice, CZ

## Overall comparison of filtration efficiency

SHEET FILTRATION	FKS FILTRATION
reduced body, flavor, aroma, and color	maintained body and improved flavor, aroma and color
high expenses for filtration sheets	kieselguhr filtration is 10-times to 50-times cheaper
open hydraulic system – risk of infections and dripping losses	closed hydraulic system – fully sanitizable system
Impurities may infiltrate into wine should the recommended pressure level be exceeded	A fixed steel candle will guarantee the same filtration efficiency at any pressure

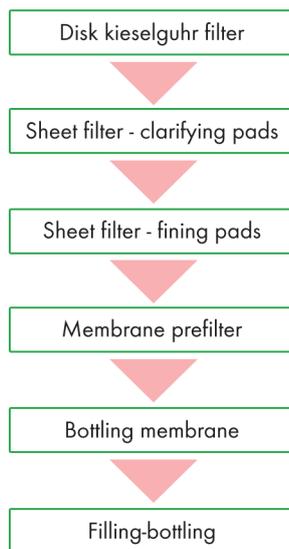
# Less time-consuming filtration

## a) Lower number of filtering cycles

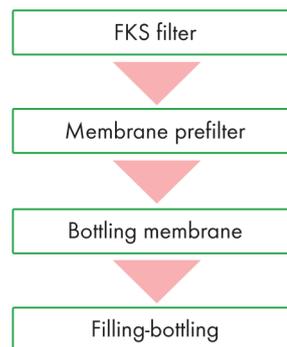
The filtering cake diameter grows with continued filtration, implying a larger filtering surface and much slower pressure growth. The filtering cycle is then prolonged (more wine is then filtered within one filtration cycle).

By combining the kieselguhr with different grain sizes within one filtration cycle, you can achieve a multilevel filtration (such as primary and secondary filtration in a single step).

### Conventional method of filtering



### Our approach to filtering



## b) Higher filter capacity

FKS has higher capacity of its filtering cycle due to the continuous feeding of kieselguhr by floating. Then, even a very turbid wine can be processed.

A combination of filtration rates and kieselguhr dispensing levels will make it possible to achieve shorter filtration times and greater filtered amounts.

## c) Shorter filtering preparation times

## d) Quicker cleansing with reverse pressure surges

## e) Automation

## FKS filtration principles

The filtering layer consists of a filter material (mostly of kieselguhr, perlite, etc.) precoated onto the filtering carriers - stainless steel filtration candles of a special spiral wounded structure for high deformation resistance and long life of these carriers, resulting in high efficiency of filtration. The filtering material - suspension - (mostly kieselguhr) is prepared in a mixer vessel. Basic filtering layer is precoated onto the candles by means of a so-called "quick precoating", or a circulation with a circulation pump. A liquid fluid is flown through the candles and the kieselguhr therein will cling to the candle surfaces, making there a filtering layer. The liquid to be filtered is forced through this filtering layer by action of the circulation pump. The turbid-making particles will remain caught up there. To make the filtration cycle sufficiently powerful in capacity and cost-saving, additional kieselguhr is continuously delivered onto the candles in controllable amounts during the filtration, driven by a dosing pump. Hereby, the filtration cake is maintained in a permeable condition with a relatively constant flow rate and filtration effect for a predefined period of time. The filtration cake is removed from the candles either manually or by means of a semi-automatic rinsing once the filtration ends up. Very low operating costs per unit of volume and high productivity and efficiency are typical for this kieselguhr filtration.

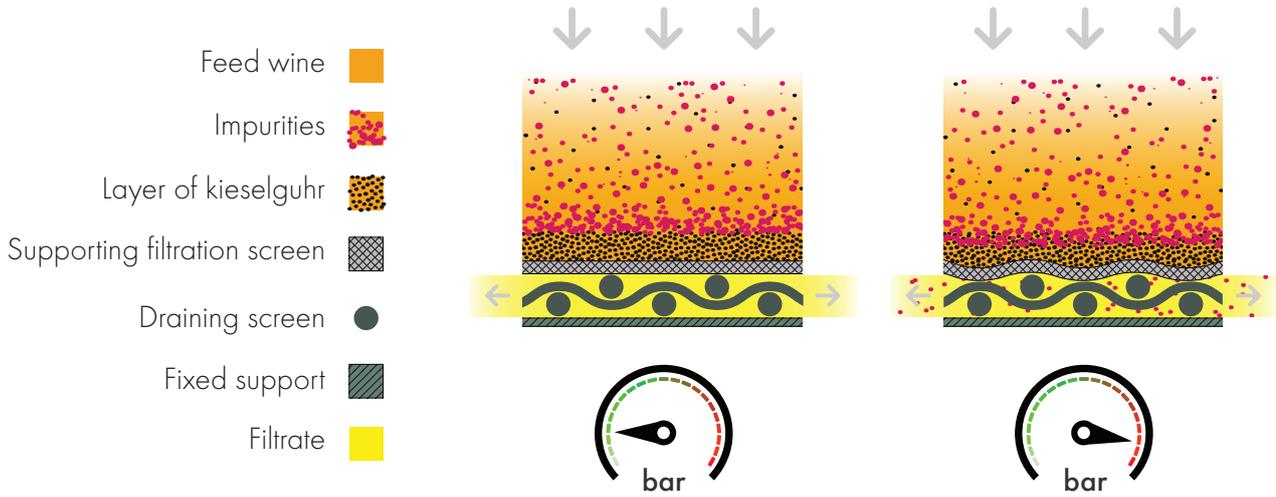


A detail of the candle slots between the turns of the trapezoidal wire (slot width 50 micrometers)

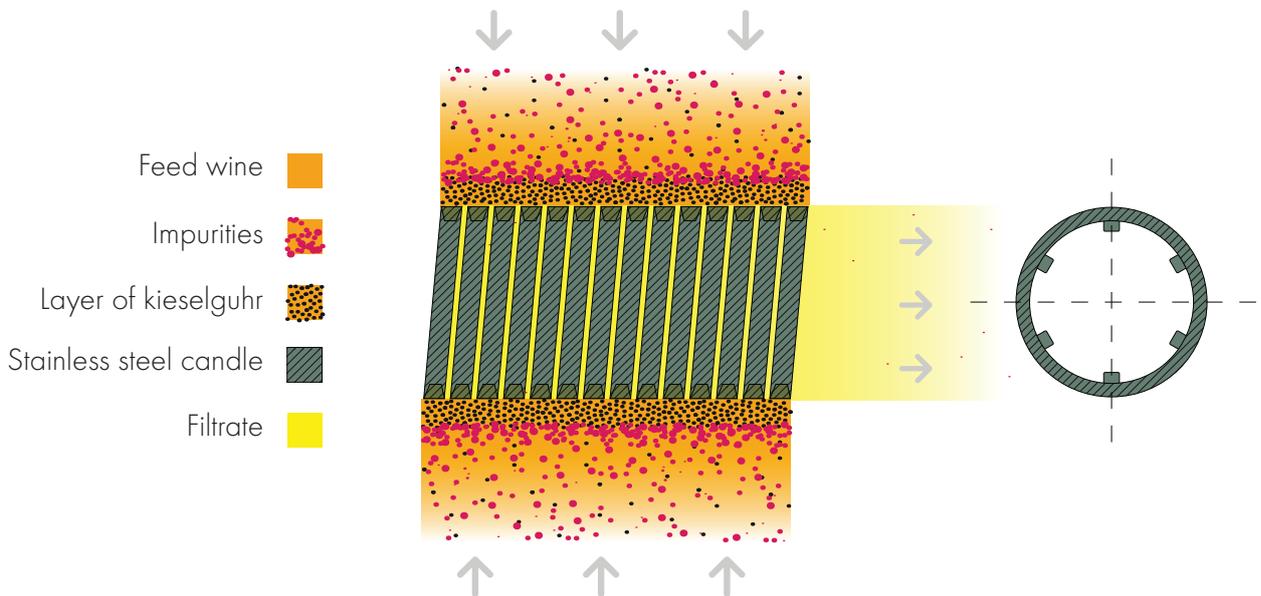


A sample of the uniformly floated individual layers of kieselguhr on the candle.

# Efficiency comparison: FKS filter versus disk kieselguhr filter

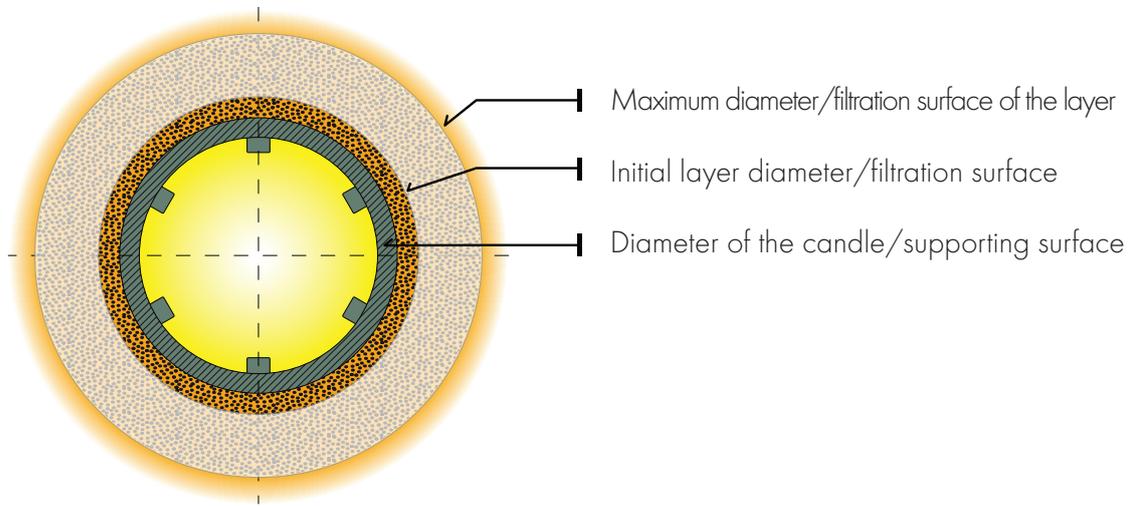


In the event of the horizontal disk kieselguhr filters, the growths or changes in the filtration flow rate or pressure will cause deformation of the supporting screen (fabric from fine wires), and thus also of the kieselguhr filtration layer. Imperfect compactness of the layer will then cause a leakage of kieselguhr and caught up impurities into the filtrate.



Being strong, the cylindrical filtration candle of steel will prevent the filtration layer deformations, given normal pressure conditions during the filtration. The stable filtration layer shows a high efficiency in capturing the impurities. As such, the candles from trapezoidal wires will allow even the fine filtration of wines with microbiological impacts.

## Higher filtering capacity



The candle filtration surface grows with growing amounts of the floated kieselguhr and captured impurities, resulted in a prolonged filtration cycle and increased volumes of filtered wine.

## Kieselguhr filter construction and efficiency: Comparison

DISK KIESELGUHR FILTER	FKS FILTER
low clarity of filtered wine	high clarity of filtered wine
for rough clarify filtering only	all the filtration levels
mechanical rinsing of the disks – slower cleansing method	quick cleansing by a reverse pressure surge - shorter maintainance time
very low sanitizing clenability of the filter disks	excellent sanitizing clenability of the filtration candles
lower filtering capacity – filtration surface of a filter disk is constant during filtration	higher filtration capacity due to growing filter surface during the filtration process

# WHY DO THE WINEMAKERS CHOOSE US?

More gentle and  
cost saving filtration

**It is our mission** Since 1990; we have been assisting the winemakers in make a high-quality wine. Our filters are well known for their ability to produce flavour, stable, and aromatic wines with a unique expression and characteristic. We are pioneers in using the FKS candle kieselguhr filters within viniculture, as they are gentle to the wine and cost-efficient. Hundreds of winemakers are satisfied with them. Wine stabilization and solutions for sanitizing process, which plays a significant role for the wine stability, rank themselves among our other strengths.

Individual approaches  
to customers

**Flexibility** We are a relatively small company, taking its size as an advantage due to which we can emphasize your individual needs and respond to them flexibly. We are aware of the fact that the more customers get involved in the development of our products, the more satisfied they will be with them.

Experience and  
development

**We have set out on our own way of development** – avoiding any copying. We are aware of the fact that the Czech viniculture differs in many aspects from its counterparts abroad, presuming new approaches and new original solutions. Our long-standing experience with the conditions in which the local winemakers work and with their own approaches to the processes will guarantee the good wine making results.

Technological  
skills

**Close cooperation with winemakers** in development and crafty short-run production by means of the state-of-art technologies made it possible for the company to come with the unique technical solutions and to win several patents with which we help make your production more effective.

Quality

**We are keeping track of every detail** – ever striving to achieve utmost simplicity of the equipment in order to avoid breakdowns. This approach brings us relevant benefits.

Ethics and fairness

**Public service** – this is how we perceive our work, subduing even our corporate culture and employee recruitment polity to this mission. We believe to ensure a long-term success for you and ourselves by focusing our efforts exclusively on the customer benefits.

