

Filter aid from cellulose for a careful and gentle vinification

- **cost-effective filtration**
- **biological, organic material**
- **aroma and colour preserving**
- **ecological disposal**
- **increased job safety**



CelluFlux®: filter aid from natural cellulose

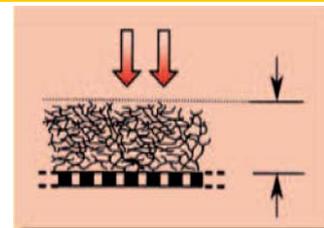
CelluFlux® filter aids for pre-coat filtration are highly pure powder celluloses processed according to a special grinding technique. Available in various degrees of fineness for the different requirements in wine and sparkling wine filtration.

CelluFlux® cellulose is made from naturally growing raw materials. It is a 100 % organic substance, thus completely biodegradable and best suited for use in soil cultivation.

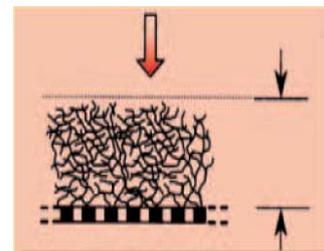
CelluFlux® can be applied in all conventional filter systems without any problem. No technical changes/engineering changes are needed.

Advantages of CelluFlux®

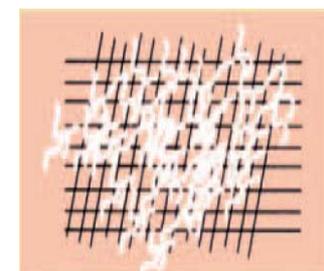
- economical, saving of dosage amounts
 - up to 70 % as against kieselguhr
- higher throughput with prolonged filter operating cycles
 - reduced working times, shorter preparation/setting periods, less water for cleaning
- no silicate-containing, crystalline components
 - no risk to health by silicosis, no protective dust mask during application necessary,
 - improved job safety, improved conduct of quality audits
- reduced disposal costs
 - small waste volume
- 100 % biodegradable
 - unproblematic utilization of filter cakes in soil cultivation (or via sewerage)
- pressure surge elastic by fibre structure
 - no particle bleeding-through, no crack formation in the filter cake
- soft organic material, not abrasive
 - prolonged operating life of dosing pumps, feed pumps, filter plants, filter cloth, etc.
- less colour losses in red wine filtration
- aroma preserving, enhanced aroma profile of the cellulose-filtered wine



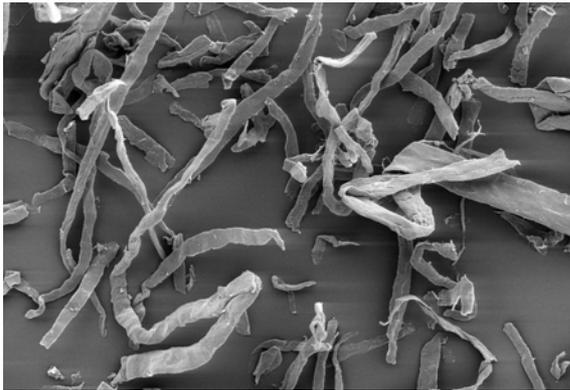
pressure elasticity



bridging of defective spots in the tissue



Comparison: cellulose – kieselguhr



cellulose

- light material
- porous, open/not compact filter cake
- very economical consumption
(saving of up to 70% as against kieselguhr)

kieselguhr

- high specific weight
- close-grained, compact filter cake
- high consumption

Higher throughput, prolonged filter operating cycles, reduced consumption, considerably increased cost-efficiency

Case study red wine filtration: Württemberg Spätburgunder/Pinot noir, WZG Möglingen (wine-growers' cooperative, Möglingen)

First filtration after clarification with horizontal plate filter

technical aspects		
	kieselguhr	CelluFluxx [®]
pre-coating	50 kg coarse kieselguhr	5 kg CelluFluxx [®] P30 / 20 kg CelluFluxx [®] F45
corresponds to	1.25 kg / m ² filter surface	0.625 kg / m ² filter surface
continuous dosing, total	400 kg fine kieselguhr (5 x 80 kg)	175 kg CelluFluxx [®] F45 (5 x 35 kg)
filter aid consumption, total	450 kg kieselguhr	200 kg CelluFluxx [®]
filtrated wine	330,000 L	420,000 L
specific consumption	1.36 g kieselguhr / L wine	0.48 g CelluFluxx [®] / L wine
filter operating cycle (pass-through period)	10 h	12 h
pressure difference	4 bar	4 bar
economic aspects		
filter aid costs (€/kg)	0.65	2.95
filter aid costs, total (€/kg)	292.50	590
wine loss 1 kg filter aid binds approx. 3 L wine (L)	1.350	775
assumed sales price wine (€/L)	2	2
receipt loss (€)	2,700	1,550
waste volume (25 % dry matter) (kg)	1,800	900
assumed waste disposal costs 100 €/t (€)	180	90
actual filtration costs (€)	3,172.50	2,230
saving potential with cellulose (€)	942.50	

The sales price per litre wine is an assumed low price to give an example. With higher sales prices, savings rise correspondingly.

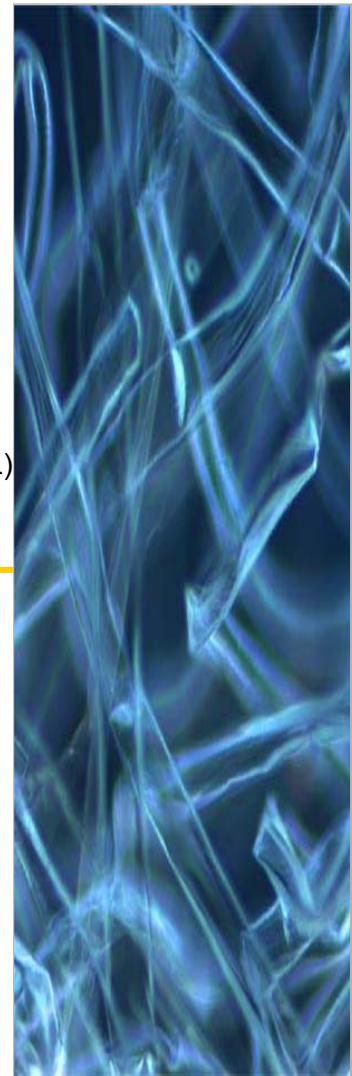
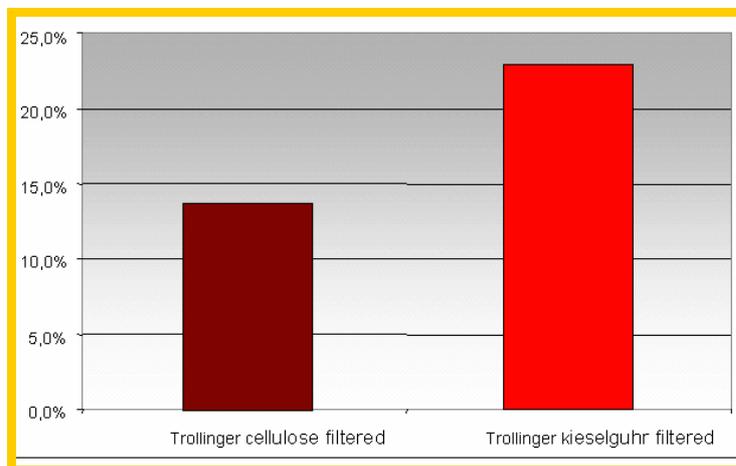
Case study – cuvée and sparkling wine filtration

filtrated amount of cuvée wine	600,000 L
filtrated amount of sparkling wine	103,000 L
total quantity	703,000 L
employed filter cellulose	95 kg
specific consumption cellulose	0.135 g/L
filter operating cycle (pass-through period)	11 ¾ h

Comparison: usual kieselguhr consumption according to winery:

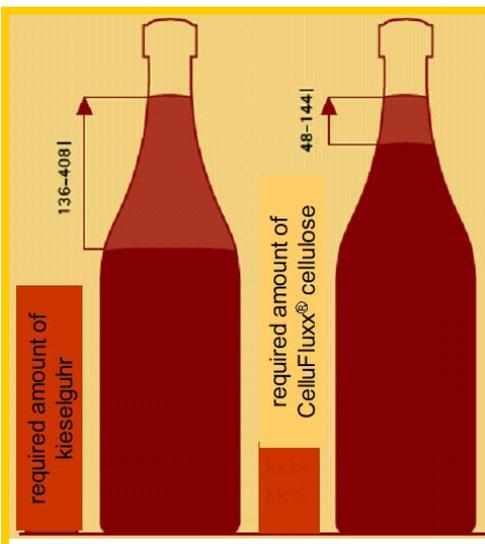
- for cuvée filtration approx. 0.30 – 0.50 g/L
- for sparkling wine filtration approx. 0.50 – 0.80 g/L (up to 1.2 g/L)

Colour losses in the course of filtration



Colour loss trials during filtration with CelluFluxx® cellulose and filtration with kieselguhr at the example of the vine variety Trollinger (Vernatsch).

Ratio of filter aid consumption and resulting wine loss

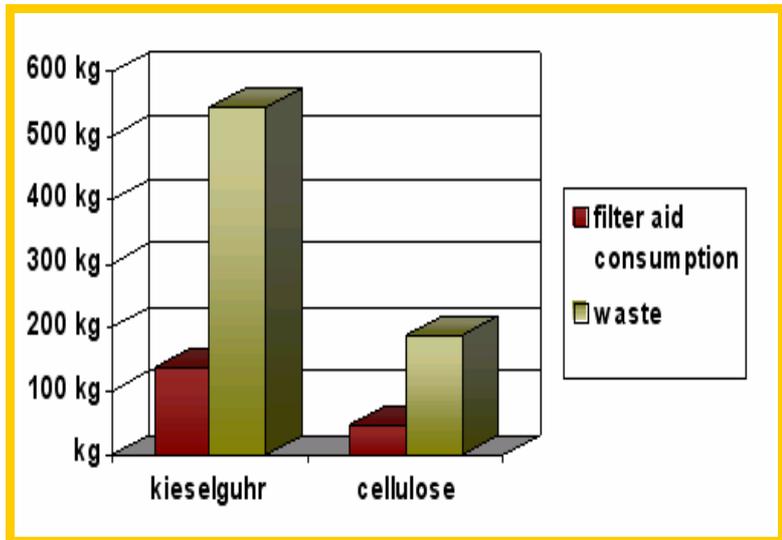


- 1 kg filter aid absorbs approx. 1-3 L wine (study by DLR Neustadt/W.)
- The filtration of 100,000 L Pinot noir requires:
 - approx. 136 kg kieselguhr consequently a wine loss of 136-408 L
 - or approx. 48 kg cellulose consequently a wine loss of merely 48-144 L
- CelluFluxx® saves not only cash money (reduced consumption), but secures higher profits (increased wine yield).

loss using kieselguhr
calculated for 100,000 L

loss using cellulose
calculated for 100,000 L

Advantages of consumption and waste disposal



Resulting filter cake during the treatment of 100,000 L Pinot noir:

- 136 kg kieselguhr can easily lead to a 4-fold amount of filter cake, i.e. 544 kg of filter sludge (25 % dry matter)
- 48 kg cellulose result in merely 192 kg waste (25 % dry matter)

Important:

Cellulose is a pure vegetable product, thus completely biodegradable (valuable humus, compost for soil cultivation and soil improvement).

Cellulose and wine quality

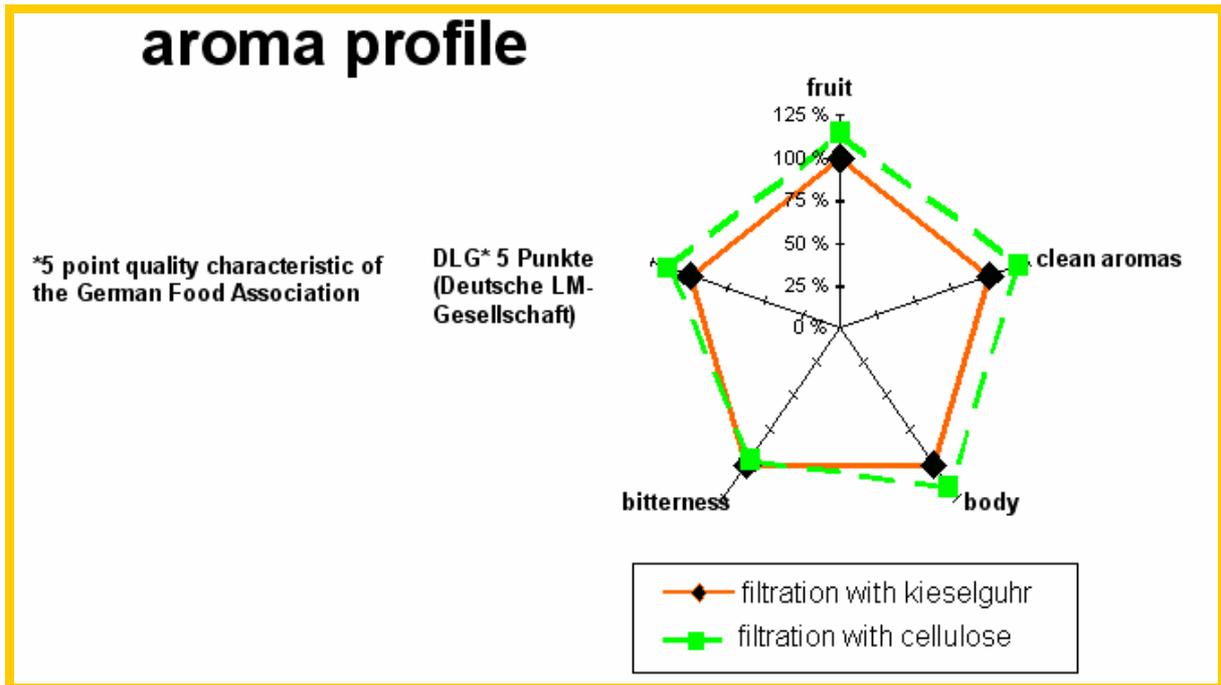
Prof. Tilo Hühn, Hochschule (technical college) Wädenswil, Switzerland evaluates the impact of the filtration on flavour relevant components in wine.

Evaluation result:

Cellulose removes considerably less aroma substances from the wine.

“On the basis of the conducted trials, an impact of the filter aids on the decisive, value-giving ingredients is clearly ascertainable.

... aroma analysis yields plain results. For most of the tested aroma substances, the wines filtered with kieselguhr present lower contents. Except for sulphur-containing substances, these low aroma concentrations can be evaluated in a negative way (tendency).”



Aroma profile of a cellulose and a kieselguhr filtered Lemberger.

Tasting by the cellar master taste panel of the LVWO Weinsberg.
Source: Dr. Oliver Schmidt

Example vine variety Lemberger

wine	treatment variant	difference total sum ethyl ester (produced by the yeast) [%]	difference succinic acid diethyl ester [%]	difference sum terpenes [%]
Lemberger	cellulose in pre-coat filter	0.0	0.0	0.0
	kieselguhr in pre-coat filter	- 14.6	- 78.4	- 6.3

Selection of CelluFluxx® filter celluloses

Filter cellulose	CelluFluxx® F25	CelluFluxx® F45	CelluFluxx® F75	CelluFluxx® P30	CelluFluxx® P50
grain size	ultra fine	extra fine	medium	coarse	extra coarse



Application of CelluFluxx® filter celluloses

- CelluFluxx® F25: extra short, strongly fibrillated cellulose fibre, for the second pre-coat as well as for continuous dosage.
- CelluFluxx® F45: short, strongly fibrillated cellulose fibre, for the second pre-coat as well as for continuous dosage.
- CelluFluxx® F75: medium long, strongly fibrillated cellulose fibre, for the second pre-coat as well as for continuous dosage.
- CelluFluxx® P30: smooth, little fibrillated cellulose fibre, for the first pre-coat.
- CelluFluxx® P50: long, voluminous cellulose fibre. For the processing of sediments from must settling, deacidification, wine lees, for use on rotary vacuum drum filters.

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