

# must treatment

Targeted grape must treatment leads to clean wines

Application	Product	Effect	Dosage
tannin reduction	MostoGel <b>NEW</b> components: gelatin and PVPP, casein-free: no labelling duty	<ul style="list-style-type: none"> <li>reduction of undesirable polyphenols</li> <li>good clarification</li> <li>prevention of untypical ageing character and browning</li> </ul>	50-200 mL/100 L
	Erbslöh-Mostgelatine (liquid) components: gelatin and milk proteins		50-200 mL/100 L
	OenoPur <b>NEW</b> components: cellulose, PVPP, gelatin, mineral adsorbent, casein-free: no labelling duty		30-100 g/100 L
	PrePur (powder) components: potassium caseinate, PVPP and cellulose		30-150 g/100 L
protein stabilisation	Seporit PORE-TEC® selected special bentonite, granulated	<ul style="list-style-type: none"> <li>early protein adsorption</li> <li>prevention of disturbing substances and off-flavours</li> <li>improved fermentability</li> <li>prevention of later wine disorders</li> </ul>	100-200 g/100 L
	MostRein PORE-TEC® clay mineral and activated carbon, granulated		approx. 150 g/100 L
damaged grapes	Granucol® GE, Granucol® Rouge activated carbon, granulated	<ul style="list-style-type: none"> <li>removal of disturbing substances by rot, damage by wasps and birds, sunburn and pesticide residues</li> <li>better fermentability and cleaner wines</li> </ul>	per % rot 1 g/100 L
	MostRein® PORE-TEC clay mineral and activated carbon, granulated		approx. 250 g/100 L, with more than approx. 15 % damaged grapes additional use of Granucol® GE

**oeno news**  
Geisenheim Information no. 101



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Casein-free grape must vinification with MostoGel **NEW** and OenoPur **NEW**

Efficient flotation with LiquiGel Flot and Trenolin® Flot DF

Support by Vita-Nutrients

MLF-strain BioStart® Vitale SK 11® **NEW**

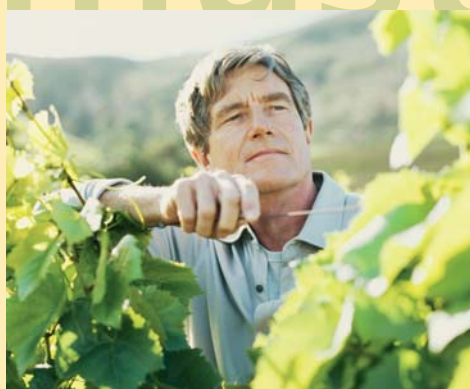
Optimised lees processing with CelluFluxx® and Trub-ex Neu **NEW**



## The alternatives to must treatment agents with duty of labelling: MostoGel **NEW** and OenoPur **NEW**

Milk products are traditionally used in winemaking. In the main milk protein consists of two fractions: whey proteins, soluble in acidic medium and caseins which flocculate in acidic solution. Due to the good solubility whey proteins are preferably used in liquid preparations for must treatment, as for instance, must gelatin. Casein in its better soluble form potassium caseinate, is mostly applied in powder preparations for the selective adsorption of tannic substances, e.g. Gerbinol Super.

Because of the coming duty of labelling (see Blitz News Edition 12/2007) wine producers who use egg proteins or lactoproteins for grape must and wine treatment, also to exert an impact on the profile of their wines, wonder whether it will be the perceptible change in wine quality or indeed the respective labelling on the wine bottle which will irritate their customers more. To help the quality-oriented wine producer out of this dilemma, treatment agents had to be developed which, in their effect, are similar to the approved products to the largest possible extent, yet do not contain ingredients which require allergy labelling.



### Trials to treat grape musts with liquid products:

The user expects of a combination product applied for must pre-clarification a visible clarifying effect without running the risk of a stuck fermentation. According to experience musts can be fermented still well in the range of 50–100 NTU, whereas with a residual turbidity of < 30 NTU fermentation stops could occur.

## process

Product/process	Dosage mL/100 L	Turbidity (NTU) after treatment at 20°C	Turbidity (NTU) after treatment at 8°C
Control, sedimentation, 24 h		108	153
Gelatin-isinglass-combination	100	58	78
Casein-free must gelatin (MostoGel)	100	43	83
Must gelatin	100	42	93
Flotation with LiquiGel Flot	100	58	90
Gelatin and silica sol (Blankasit)	100/50	24	74

Fig. 1: Turbidity after different variants of must treatment of a Riesling must with 180 NTU initial turbidity

With the exception of the control, the aimed at degrees of clarification are attained in all treatment combinations. The 20°C variant of the gelatin – silica sol fining overshoots the mark of 50 to 100 NTU. At low temperatures clarification is a lot more difficult, yet with the exception of the control here also residual turbidities below 100 NTU are obtained.

Duty of labelling	No duty of labelling
<p><b>For grape musts/wines treated with:</b></p> <ul style="list-style-type: none"> <li>chicken egg white in form of fresh eggs, dried or pasteurised</li> <li>lysozyme</li> <li>lactoprotein from skimmed milk, casein, potassium caseinate or whey protein</li> </ul> <p><b>AND</b></p> <p>labelled after 31st May 2009. (The crucial date is the date of bottling/labelling, not the date of must/wine treatment).</p>	<p><b>For grape musts/wines treated with:</b></p> <ul style="list-style-type: none"> <li>Gelatin:                             <ul style="list-style-type: none"> <li>LiquiGel Flot</li> <li>Erbigel® Flot</li> <li>GelaFish</li> <li>Gelita-Klar</li> <li>Erbigel®</li> </ul> </li> <li>Fish products:                             <ul style="list-style-type: none"> <li>IsingClair-Hausenpaste (isinglass)</li> <li>GelaFish</li> </ul> </li> <li>Special must treatments:                             <ul style="list-style-type: none"> <li>MostoGel</li> <li>OenoPur</li> </ul> </li> <li>PVPP:                             <ul style="list-style-type: none"> <li>Polyclar® V</li> </ul> </li> </ul>

# must treatment

Furthermore required of must treatment agents is a removal of disturbing tannic substances especially with musts from rotten/damaged grapes or mechanically loaded press fractions. To put such a case to the test, a grape must was adjusted to a catechin content of 125 mg/L and was equally treated in a laboratory trial with different product combinations (see fig. 2).

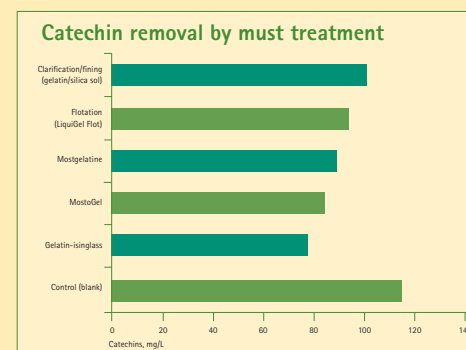


Fig. 2: catechin content after different variants of must treatment with an initial catechin content of 125 mg/L grape must

MostoGel achieves a similar adsorption of grape-own tannic substances as with the use of must gelatin or with flotation. Responsible for the tannin-adsorbing effect of MostoGel is a special combination of different gelatins with different molecular structure, which is also contained in the liquid flotation gelatin LiquiGel Flot and has already proved to perform efficiently. Additionally MostoGel contains a carefully adjusted PVPP portion.

### Trials to treat grape must with powdery products:

Already in autumn 2007 an alternative product to the powdery casein-containing must treatment agent PrePur had been tested in German and French wineries to be able to react to a coming labelling duty. This alternative product – OenoPur – consists of a mixture of highly pure cellulose, PVPP, gelatin and a mineral adsorbent.

The results show, that with corresponding dosages of OenoPur, the volume of the clear phase increases. Wines treated in this way were preferred in comparison tastings after they had undergone vinification. Musty flavours of the soil caused by geosmin could be removed by the must fining with OenoPur. A similar effect was attained in case of oxidized and botrytis flavours.

In a further laboratory trial the tannin-adsorbing effect of OenoPur was confirmed. To another grape must catechin was added to obtain a particularly loaded test material. As can be seen in figure 2, a significant catechin reduction could be achieved with PrePur as well as with OenoPur.

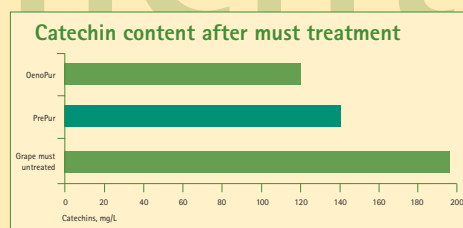


Fig. 3: catechin content after different must treatment variants with an initial catechin content of 200 mg/L grape must.

### Conclusion:

Milk proteins have their unique composition and act in a specific and careful way when applied in grape must and wine treatment. Therefore it is always quite a challenge to find an appropriate alternative. As however can be seen above, for grape must treatment, the successful development of alternatives with similar effect in the form of powder and liquid products was possible by a targeted combination of different treatment agents.



**innovativ**

You want an efficient and **casein-free** must vinification. Benefit from our innovations.

- MostoGel **NEW****  
Liquid must gelatin for easy application  
Harmonising, clarifying, casein-free.
- OenoPur **NEW****  
For the preventive treatment of grape must Prevention of bitter substances and astringency, casein-free.
- LiquiGel Flot**  
Liquid special gelatin for flotation  
Immediate flocculation, rapid clarification, casein-free.

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## Appropriate preparation of the grape must with flotation

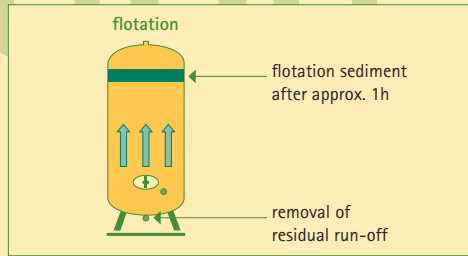
Fast and complete flocculation of the flotation media used is important for the efficiency of the flotation. With powder gelatins, the Bloom number is an important parameter as a measure of the swelling property and also, consequently, of the reactive surface. Cold-soluble gelatins are low-blooming and therefore possess a small active surface which can react with wine compounds. High-blooming gelatins such as ErbiGel® Flot (200 Bloom), which have a high reactivity, are preferred for flotation.

Conventional liquid gelatin does not react fast enough in order to obtain an appropriate flotation result. The new product LiquiGel Flot contains a high molecular weight component which has a large reactive surface and therefore ensures an optimal flotation result.

The new special product LiquiGel Flot is characterised by its liquid form and, consequently, direct usability. By using different types of gelatin, an optimal combination was developed.

LiquiGel Flot combines the advantages of conventional gelatin (fast flocculation) with those of high molecular weight proteins (good clarifying effect with small dosages).

The nitrogen supply of musts is not more strongly reduced by flotation than after sedimentation, so that any fermentation problems are due rather to too low yeast dosages during too vigorous must pre-clarification. For testing of the nutrient situation in the must, it is advisable to perform a measurement with the Erbslöh-EasyLab yeast-utilisable nitrogen test which gives the winemaker a fast estimate of the nutrient requirement. An important requirement is a low pectin content in the must, since a high pectin content increases the viscosity and therefore worsens the result of the flotation. With the addition



of the enzyme Trenolin® Flot DF, the degradation of the pectin can be accelerated, in doing so the reactions are very temperature-dependent. At temperatures of 15 to 20°C, 5 to 10 mL/100 L is usually sufficient, in order to break open the pectin framework in a few hours. Through previous enzyme addition, the quantity of gelatin – ErbiGel® Flot or LiquiGel Flot – added afterwards for flotation can be reduced.

### Advantages of LiquiGel Flot

- LiquiGel Flot is liquid and makes application easy
- High effectiveness is achieved with a low dosage
- LiquiGel Flot makes high phenol adsorption possible
- LiquiGel Flot is casein-free and thus not subject to labelling

### Flotation considerations

- Because of good pre-clarification, the sowing of yeast is to be increased to at least 20 g/100 L
- With a rot-laden vintage, activated charcoal Granucol® GE, must bentonite Seporit PORE-TEC or adsorptive mixed product MostRein® PORE-TEC should be additionally added during the flotation procedure
- Particularly with early harvested grapes, an enzymatisation with Trenolin® Flot DF is recommended since the fruit's own enzymes are not fully developed at this time

### Differences in sedimentation content

Treatment	Sedimentation in % by weight
Unflotated	0.97
Erbigel® Flot	0.40
Liquigel® Flot	0.24

These numbers substantiate that use of the two flotation gelatins ErbiGel® Flot and LiquiGel Flot removes the sediment in the desired framework to values between 0.2 and 0.6 % by weight.

## Bio-activator for a safe, completed fermentation

### VitaDrive® FermentationDrive – Non-Stop

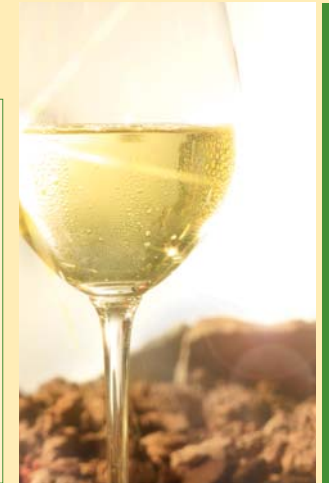
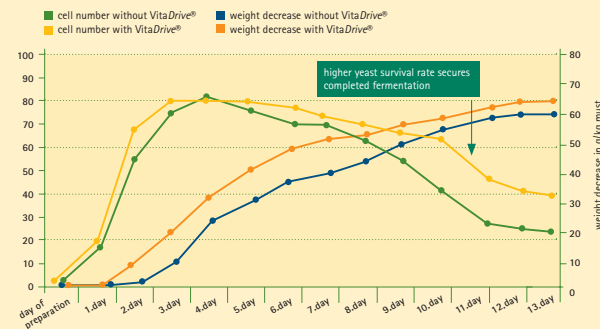
VitaDrive® mobilises the yeast and assures an appropriate nutrition right from the start. A healthy and well nourished organism is able to perform much more efficiently and to overcome stress situations more easily. Consequently, reactivated yeasts which are actively supported in strengthening their organisms after rehydration, are capable of fulfilling all their functions smoothly, uninterrupted from start to finish. As a result, alcoholic fermentation is much safer, maldevelopments and fermentation stops are prevented to the largest possible extent. Foreign organisms have practically no chance to prevail. Wines develop clean aromas and malolactic fermentation is promoted when performed subsequently.

### VitaDrive® – effect and advantages

- early energy supply and strengthening of the yeast cells
- promotion of the growth rate
- increase of resistance
- improvement of material transport
- increase of yeast cell activity
- better overcoming of stress situations
- full completion of fermentation
- fermentation stops are almost excluded
- reduction of sulphide off-flavour formation
- reduction of SO<sub>2</sub> demand
- practically no chance for foreign organisms
- promotion of clean aromas

## nutrients

### Active cells until end of fermentation



You want a consistent and rapid must treatment.  
With the Erbslöh flotation technology you are on the safe side.

- ErbiGel® Flot  
Selected high-bloom gelatin for flotation in grape musts.
- Trenolin® Flot DF  
Highly-active, despidase-free, liquid special flotation enzyme for quickest depectinisation for the ideal buoyancy of sediment particles.
- LiquiGel Flot  
Liquid special gelatin for flotation.  
Immediate flocculation, rapid clarification, casein-free.

Product	Nutrient type	Dosage recommendation	Additional dosage
VitaDrive®	nutrient for rehydration	per 1 kg yeast 1 kg VitaDrive® into the rehydration preparation	further nutrients to the fermentation vessel
VitaFerm®	perfect nutrient complex	legally admitted (EU) max. 70 g/100 L	mostly not necessary
Vitamon® A	base nutrient	50-60 g/100 L (legally admitted (EU) max. 100 g/100 L)	40-50 g/100 L with unsound, stressed grapes; 65 mg/100 L Vitamon® B
Vitamon® B	yeast vitamin	legally admitted (EU) max. 65 mg/100 L	50-60 g/100 L Vitamon® A (legally admitted (EU) max. 100 g/100 L)
Vitamon® Combi	base nutrient with yeast vitamin	legally admitted (EU) max. 50 g/100 L	30-50 g/100 L Vitamon® A
Vitamon® Ultra	selected multi-nutrient	legally admitted (EU) max. 60 g/100 L	30-50 g/100 L Vitamon® A

# CelluFluXX<sup>®</sup> and Trub-ex Neu **NEW** – cellulose application during vintage

Cellulose fibres for lees processing and for the processing of mucous grapes

Lees processing during harvest represents an important task. And often it is the limiting factor regarding press room capacity. A quick and good processing is thus very important – in qualitative and in economic respect. For many years cellulose fibres are applied as the approved structure-giving aid. Due to the efficient drainage effect, cellulose fibres provide for a rapid and excellent de-juicing of sediments. By improved grinding technique the efficiency of the cellulose fibre product Trub-ex Neu could be significantly increased.

Moreover the processing of rotten and slimy grapes is a big challenge for the winemaker. Such difficulties can be caused by the vintage, but equally by the characteristics of the vine variety, as for instance Silvaner.



## Lees processing

Filter equipment	Recommended cellulose fibre	Working method
Chamber filter press	CelluFluXX <sup>®</sup> P 50	<p>Step 1: if possible, precoating with clear grape must approx. 300 g/m<sup>2</sup> filter surface</p> <p>Step 2: dependent on lees condition: 1 to 3 kg/100 L lees volume, stir in homogeneously distributed and filter.</p>
Hydro press	Trub-ex Neu	Dependent on lees condition: 1 to 3 kg/100 L lees volume, stir in homogeneously distributed and press.
Tank press	Trub-ex Neu	Dependent on lees condition: 1 to 3 kg/100 L lees volume, stir in homogeneously distributed and press.
Rotary vacuum filter	CelluFluXX <sup>®</sup> P 50	Mixture of approx. 10 to 15 % CelluFluXX <sup>®</sup> P 50 and the usual mineral filter aids, e.g. perlites or kieselguhr. Homogenise and conduct precoating. The precise adjustment of the blade advance of the skimming device is most important.



You want fresh and aromatic wines?  
With our **Oenoferm<sup>®</sup>** yeasts  
you have chosen exactly the real thing!

- **Oenoferm<sup>®</sup> Freddo**  
Safe and successful. The bestseller among yeasts.
- **Oenoferm<sup>®</sup> Riesling**  
For the fruitiest Riesling in the world.
- **Oenoferm<sup>®</sup> Terra**  
Supporting the terroir character along with neutral and safe fermentation kinetics.
- **Oenoferm<sup>®</sup> Müller-Thurgau **NEW****  
For the modern and well-balanced Müller-Thurgau type with fine muscat note.
- **Oenoferm<sup>®</sup> Structure **NEW****  
Structure and tannin-supporting yeast for full-bodied red wines.



## New bacteria strain for red and white wine BioStart<sup>®</sup> Vitale SK11<sup>®</sup> – robust, vital, safe



- tolerates alcohol up to 15.5 % by vol.!
- tolerates total SO<sub>2</sub> up to 60 mg/L!
- tolerates pH-values as of 3.0!

The freeze-dried starter preparation BioStart<sup>®</sup> Vitale SK11<sup>®</sup> for red and white wines has been carefully selected and isolated from spontaneous fermentations of Oenococcus oeni strains coming from an internationally renowned wine-growing region. BioStart<sup>®</sup> Vitale SK11<sup>®</sup> has proved successful under extremely difficult application conditions.

The new Oenococcus oeni strain was selected for its high growth rate, increased vitality and thus for its capability to perform a safe and rapid malic acid degradation.

BioStart<sup>®</sup> Vitale SK11<sup>®</sup> tolerates without problem low pH-values and cool cellar temperatures. High alcohol concentrations, typical for regions with southern climate, were particularly considered when selecting the strain.

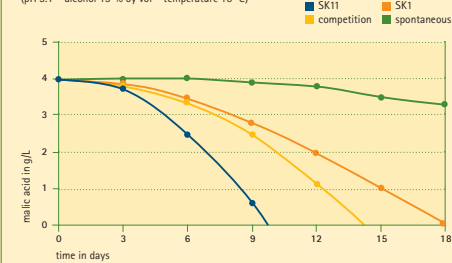
Equally unproblematic for the new starter culture are high SO<sub>2</sub> values, commonly in use with grape mash and grape must sulphiting.

BioStart<sup>®</sup> Vitale SK11<sup>®</sup> assures histamine-free MLF and only very reduced volatile acid formation.

Vitality is advanced by stress induction already employed during production and thus BioStart<sup>®</sup> Vitale SK11<sup>®</sup> is optimally adapted to difficult conditions.

### Trial: Riesling 2007, unsulphited

(pH 3.1 – alcohol 13 % by vol – temperature 16 °C)



### Organoleptic properties of BioStart<sup>®</sup> Vitale SK11<sup>®</sup>

**Red wine:**  
Elegantly rounding off the red wine character, jam, cherry, ripe paprika flavours, delicate- pleasant butter note

**White wine:**  
Varietal typicity and freshness are preserved, notes of dried fruit and peach

### Characteristic of BioStart<sup>®</sup> Vitale SK11<sup>®</sup> lactic acid bacteria

Application purpose	for red and white wines
Viable cell count	1 x 10 <sup>11</sup> CFU/g
Temperature tolerance	16 – 25 °C
pH-tolerance	> 3.0
Alcohol tolerance	up to 15.5 % by vol.
Free SO <sub>2</sub> (mg/L)	up to 15
Total SO <sub>2</sub> (mg/L)	up to 60
Nutrient addition	BioStart <sup>®</sup> Nutri



## innovativ

You want an efficient enzymatisation.  
With depectase-free  
**Trenolin<sup>®</sup>** enzymes you obtain:

- short contact times
- more colour
- quicker clarification
- intensified aroma
- increased free-run juice
- improved pressing

