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A New Dimension in Depth Filtration.

No affect on the product, maximum microbiological safety, and unsurpassed exterior hygiene set new standards.

This is **BECOPAD**. Ultrapure and organic.

Produced based on the bepure process.

---

**BECOPAD**

The **Pure** Truth of Depth Filtration.

Mineral-free  
20 % greater efficiency  
50 % lower flushing volume  
99 % less mold  
100 % biodegradable

Free of heavy metals  
Coarse to sterile filtration  
99 % less drip loss

---

High-cationic **BECOPAD** is also available for specific applications.
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BECO ENDURA

Fascinating characteristics of the new support sheet for precoat filtration in kieselguhr frame filters
The new support sheet for precoat filtration

Improved characteristics at all filtration steps:
- Sterilisation
- Filtration
- Unpacking

Sterilisation (inserting/steaming)
- BECO ENDURA has high stability/strength
- Little loss of strength during all filtration cycles

Filtration
- Higher number of cycles ➜ longer service life
- Better cost effectiveness
- Reduced costs/ increased efficiency
- Higher wet strength

No negative influence on the value-adding ingredients and flavors (phenols/proteins)
- Uniform kieselguhr precoat appearance over the whole BECO ENDURA lifetime
- Very little discoloration of the support sheet

Unpacking (filtration end/filter opening)
- Ideal handling
- Good kieselguhr separation capability
- High wet strength

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 info@begerow.com
Filtration with BECO filter cartridges
BECO MEMBRAN PS filter cartridges are made of hydrophilic PES (Polyethersulphone) membranes.

**Your special benefits:**
- High microbiological safety
- High flow rates with low differential pressures
- Broad chemical compatibility with commonly used sanitising agents
- High throughput

**Typical applications**
BECO MEMBRAN PS membrane filter cartridges are designed for the sterile filtration of:
- beverages such as beer, wine, mineral water, cider and fruit juices.
- liquid foods.

**Features:**
- Highly asymmetric polyethersulphone membrane providing full bacterial retention
- Upstream and downstream draining devices made of polyester
- Absolute retention ratings 0.2 μm, 0.45 μm, 0.65 μm and 0.8 μm
- Filter cartridge materials are chemically and biologically inert according to FDA, USP and EC Directive 2002/72/EC

**Principles of membrane filtration**
The main principle of membrane filtration is a sieving effect based on a size exclusion mechanism. Membrane filters may be thought of as a geometrically regular porous matrix. Particles are retained on the surface or within a given fraction of the membranes thickness. All microorganisms or particles larger than the pore size will be retained.

**Detailed specifications:**
see Technical Information 1 A 4.3.4
BECO PROTECT PP pre-filter cartridges are made of pleated multiple layers of polypropylene filter material.

**Your special benefits:**
- Absolute retention ratings according to β-ratio 5000
- Manufactured from 100% polypropylene to provide wide chemical compatibility
- Large filtration area by pleated filter material

**Typical applications**
BECO PROTECT PP pre-filter cartridges are designed for the
- filtration in the food and beverage industry (wine, juices, mineral water, soft drinks, edible oils).
- general liquid and gas filtration.

**Features:**
- Non-woven pleated polypropylene filter medium
- Filter cartridge materials are chemically and biologically inert according to FDA, USP and EC Directive 2002/72/EC

**Principles**
The BECO PROTECT PP pre-filter cartridges contain a multi-layered filter medium made of polymeric fibers. Particles larger than the spaces within the filter matrix are retained. Due to the multiple-layer structure of the pleated filter medium, BECO PROTECT PP pre-filter cartridges exhibit a high dirt holding capacity.

**Detailed specifications:**
see Technical Information 1 A 4.3.7
BECO PROTECT PG depth filter cartridges are made of polypropylene filter media that are wound around an internal core. The special feature of these depth filter cartridges is gradually decreasing porosity from outside to inside, which ensures high dirt holding capacity.

**Your special benefits:**
- Absolute retention rating tested at Beta 5000 for depth filter cartridges from 0.2 μm up to 75.0 μm
- Made from 100% polypropylene for wide chemical compatibility with most gases and liquids
- Graded porosity through depth filtering structure provides increased dirt holding capacity for longer service life
- Back-washable up to 2 bar at 80 °C

**Typical applications**
BECO PROTECT PG cartridges are designed for the clarification and fine filtration for beverages such as wine, sparkling wine, beer, mineral water, cooking oil, alcoholic beverages, sugar syrup and non-alcoholic beverages.

**Features:**
- Wrapped polypropylene filter material
- All materials used are FDA-listed and meet the requirements of EC Directive 2002/72/EC

**Principles**
The direction of flow in the BECO PROTECT PG depth filter cartridge is from the outside in. The polypropylene fleeces are graded from coarse to fine. The inner fine fleeces define the "absolute" retention rate range. Due to this structure, the BECO PROTECT PG depth filter cartridge offers excellent backwashability. Any blockage can thus be purged more easily against the direction of filtration.

*Detailed specifications:*
see Technical Information 1 A 4.3.1
BECO PROTECT PB depth filter cartridges are made of thermally bonded blown polypropylene microfibers.

**Your special benefits:**
- High throughput, low pressure loss, high dirt holding capacity
- Made from pure polypropylene, therefore high chemical resistance
- Elements can be incinerated to trace ash, thereby reducing disposal costs

**Typical applications**
BECO PROTECT PB depth filter cartridges are designed for the coarse filtration of
- food and beverages.

**Features:**
- High mechanical strength, making internal and external support bodies unnecessary
- Nominal retention ratings between 0.5 and 100 μm

**Principles**
BECO PROTECT PB depth filter cartridges are the economic choice for coarse filtration applications where low filtration costs are a significant issue.
The firm pore structure acts like a screen filter.

**Detailed specifications:**
see Technical Information 1 A 4.3.8
## Adapter code

<table>
<thead>
<tr>
<th>BECO MEMBRAN PS</th>
<th>x</th>
<th>x</th>
<th>x</th>
<th>x</th>
<th>x</th>
</tr>
</thead>
<tbody>
<tr>
<td>BECO PROTECT PP</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>BECO PROTECT PG</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>BECO PROTECT PB</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Codes:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Double open end without end caps</td>
</tr>
<tr>
<td>F</td>
<td>Double open end 2 flat gaskets</td>
</tr>
<tr>
<td>0</td>
<td>2-222 O-Ring without spear</td>
</tr>
<tr>
<td>2</td>
<td>2-222 O-Ring with spear</td>
</tr>
<tr>
<td>5</td>
<td>2-222 O-Ring with spear</td>
</tr>
<tr>
<td>7</td>
<td>2-226 O-Ring Double bayonet with spear</td>
</tr>
</tbody>
</table>

### BECO filter cartridges:

#### Available pore sizes:

- **BECO MEMBRAN PS**:
  - 0.2 μm
  - 0.45 μm
  - 0.65 μm
  - 0.8 μm

- **BECO PROTECT PP**:
  - 0.6 μm
  - 1.2 μm
  - 2.5 μm
  - 4.5 μm
  - 6.5 μm
  - 10.0 μm
  - 20.0 μm
  - 40.0 μm
  - 60.0 μm

- **BECO PROTECT PG**:
  - 0.2 μm
  - 0.3 μm
  - 0.6 μm
  - 1.0 μm
  - 2.0 μm
  - 3.0 μm
  - 5.0 μm
  - 10.0 μm
  - 20.0 μm
  - 30.0 μm
  - 50.0 μm
  - 75.0 μm

- **BECO PROTECT PB**:
  - 0.5 μm
  - 1.0 μm
  - 3.0 μm
  - 5.0 μm
  - 10.0 μm
  - 25.0 μm
  - 50.0 μm
  - 75.0 μm
  - 100.0 μm

#### Available lengths:

- 10” (25 cm)
- 20” (50 cm)
- 30” (75 cm)
- 40” (100 cm)

---

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---

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BECO MEMBRAN \( PF_{\text{plus}} \)

BECO Membrane Filter Cartridges for the Beverage Industry
Product Information

Product Description
The BECO MEMBRAN PFplus was developed especially for the beverage industry as a final sterile end filter (prior to bottling) for use after pre-filtration using BECO depth filter sheets or BECO pre-filter cartridges for example. It guarantees reliable filtration of yeast and bacteria such as Lactobacillus, Pediococcus, Leuconostos oenos or E. coli, etc.

Since only two materials are used – polyvinylidene fluoride (PVDF) and polypropylene – the filter cartridges have a wide resistance (< pH 12) to common cleaning agents.

BECO MEMBRAN PFplus filters feature a newly developed end cap resulting in excellent mechanical robustness.

Product Advantages
- Long service life through larger filter area and excellent mechanical stability
- High reliability due to uniform pore sizes
- Excellent microbiological resistance to sterilizing and cleaning agents; a major item for successful regeneration
- Resistance to hot water rinsing at temperatures up to 95 °C
- Multiple steam or hot water sterilization cycles
- Elastic and durable membrane materials
- Used filter cartridges can be stored in a dry place. The wettability and elasticity of the membranes is maintained

Application examples
Product Specifications

Materials
- Pleated, hydrophilic polyvinylidene-fluoride (PVDF) membranes
- Inside and outside support corpus and end caps made of polypropylene
- Silicone O-rings

Pore size
- 0.22 µm, KVBL range for bacteria retention
- 0.45 µm, KVBB range for bacteria retention
- 0.65 µm, KVBY range for yeast retention
- 1.0 µm, KVBA range for yeast retention

Dimensions
- Outer diameter: 69 mm
- Lengths: 25 cm/10”, 50 cm/20”, 75 cm/30”, 100 cm/40” on request

Filtration surface
- 0.78 m² per 25 cm/10” element

Operating conditions
- max. Differential pressure in the direction of flow
  - 5.5 bar at 25 °C
  - 1.7 bar at 80 °C
  - 0.35 bar at 121 °C
- max. differential pressure against flow direction 3.5 bar at 25 °C (intermittent)
- Maximum operating temperature: 80 °C

Retention efficiency per cm²

<table>
<thead>
<tr>
<th>Type</th>
<th>Pore size</th>
<th>Microorganisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>KVBL</td>
<td>0.22 µm</td>
<td>≥10⁷ Pseudomonas aeruginosa and E. Coli</td>
</tr>
<tr>
<td>KVBB</td>
<td>0.45 µm</td>
<td>≥10⁷ Lactobacillus hilgardii, Oenococcus oeni</td>
</tr>
<tr>
<td>KVBY</td>
<td>0.65 µm</td>
<td>≥10⁷ Saccharomyces cerevisiae</td>
</tr>
<tr>
<td>KVBA</td>
<td>1.0 µm</td>
<td>≥10⁷ Saccharomyces cerevisiae</td>
</tr>
</tbody>
</table>

Integrity test

<table>
<thead>
<tr>
<th>Pore size</th>
<th>Test pressure</th>
<th>Max. diffusion rate pro 25 cm element</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.22 µm</td>
<td>2.8 bar</td>
<td>15.2 ml/min</td>
</tr>
<tr>
<td>0.45 µm</td>
<td>1.5 bar</td>
<td>17.1 ml/min</td>
</tr>
<tr>
<td>0.65 µm</td>
<td>0.6 bar</td>
<td>9.1 ml/min</td>
</tr>
<tr>
<td>1.00 µm</td>
<td>0.5 bar</td>
<td>6.3 ml/min</td>
</tr>
</tbody>
</table>

Rinsing and sterilization
- Rinse with cold and then with hot water (80 °C) after completion of the filtration process according to user instructions
- Sterilize at a max. temperature of 95 °C or with saturated steam at a max. temperature of 109 °C for a period of 20 minutes after steam has emerged from all openings and valves
- The water should be decalcified and filtered (1 µm)

Water flow rates for a 75 cm/30” element at 25 °C
Ordering Information

Adapter code

**Code 0**
Double O-ring
(2-222)

**Code 5**
Double O-ring
(2-226) quarter
turn fastener

**Code 7**
Closed flat cap
with centering tip
for Code 5 and 7

Closed flat cap
without centering
tip for Code 0

Ordering details
Sample order: pore size: 0.45 µm, adapter: double O-ring quarter turn fastener, length: 75 cm

<table>
<thead>
<tr>
<th>Cartridge type</th>
<th>Pore size</th>
<th>Adapter code*</th>
<th>Length*</th>
<th>Gasket</th>
</tr>
</thead>
<tbody>
<tr>
<td>BL = 0.22 µm</td>
<td>7</td>
<td>1 = 25 cm/10”</td>
<td>A = silicone</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = 50 cm/20”</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = 75 cm/30”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BB = 0.45 µm</td>
<td>0</td>
<td>2 = 50 cm/20”</td>
<td>A = silicone</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>3 = 75 cm/30”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BY = 0.65 µm</td>
<td>5</td>
<td>2 = 50 cm/20”</td>
<td>A = silicone</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>3 = 75 cm/30”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BA = 1.0 µm</td>
<td>7</td>
<td>3 = 75 cm/30”</td>
<td>A = silicone</td>
<td></td>
</tr>
</tbody>
</table>

* others adapters and lengths available on request

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The use of dry active yeasts is a must for breweries without their own yeast propagation facilities. The risks of slow fermentation, poor clarification, and undesired fermentation by-products are too high. SIHA dry active yeasts are a straightforward and microbiologically safe alternative to pitching yeast and industrial yeast.

**SIHA dry active yeasts offer the following benefits:**
- Purity law compliant
- Good storability (shelf life: 18 months)
- Defined quality and dosage
- No complex yeast management, timely application
- Simple handling
- Convenient and easy to ship/deliver/store
- Range of selective and special components for special beer varieties
- Excellent alternative for brewing of special and niche varieties and trial brews
- GMO-free

**SIHA HiFerm**
SIHA HiFerm is a top-fermenting dry active yeast strain from the Saccharomyces cerevisiae species (new taxonomy: Saccharomyces pastorianus), selected from the natural yeast flora of a German brewery. Beers fermented with SIHA HiFerm are characterized by a pronounced wheat beer flavor. The yeast offers good fermentation activity and excellent flocculation properties.

**SIHA HiFerm guarantees:**
- Quick start of fermentation
- Consistent product quality
- Fast yeast reproduction

**Characteristics:**
- Malt composition:
  - 55% Weyermann „Weizenbraumalz hell”
  - 25% Weyermann „Pilsner Malz”
  - 8% Weyermann „Carared”
  - 8% Weyermann „Sauermalz”
- Hops: Saphir
- Original wort: color 22.5 (EBC); volume 230 l
- Extract: 12.4 °P, pH-value 5.71
- Beer product: Final degree of fermentation 75.8% (3.09 °P); pH-value 4.31

**Parameter SIHA HiFerm**
- Start of fermentation: Quick start of fermentation
- Yeast reproduction: High cell count and fast yeast reproduction
- pH value decrease: Moderate
- Final degree of fermentation: 68% - 75% – high fermentation performance
- Flavour formation: Light and pleasant „Weizenbier”, pleasing banana flavour, refreshing and easy drinking

**SIHA LoFerm**
SIHA LoFerm is a bottom-fermenting dry active yeast strain from the Saccharomyces carlsbergensis species (new taxonomy: Saccharomyces pastorianus), selected from the natural yeast flora of a German brewery. It is characterized by good fermentation properties, with quick start of fermentation and high final degree of fermentation.

**SIHA LoFerm guarantees:**
- Moderate start of fermentation
- Good flocculation properties
- High final degree of fermentation

**Characteristics:**
- Malt composition:
  - 90% Weyermann „Pilsner Malz”
  - 8% Weyermann „Carahell”
  - 2% Weyermann „Sauermalz”
- Hops: Saphir
- Original wort: color 19.5 (EBC); volume 278 l
- Extract: 11.5 °P, pH-value 5.57
- Beer product: Final degree of fermentation 72.31% (3.17 °P); pH-value 4.38

**Parameter SIHA LoFerm**
- Start of fermentation: Moderate to slow start of fermentation
- Yeast reproduction: High cell count and yeast reproduction
- pH value decrease: Moderate
- Final degree of fermentation: 72.31% - 83.98 % – high fermentation performance
- Flavour formation: Genuine Pilscharacter, smoothy, subtile tangy character, fresh
The easy way to beer stabilization

**Beer stabilization**
As the chemical-physical stability and thus the overall shelf-life of beers has gradually gained importance in recent years, consumers now demand a beer that will retain its quality, i.e. clarity, taste and freshness during storage.

The two main components in beer that can cause precipitation are protein substances and tanning substances. Depending on its composition the bottled beer may become turbid after a short or longer period. The composition of a beer depends on several factors such as the quality of the malt, the wort boiling process, fermentation, storage and the mellowing process.

Through the specific use of stabilizing agents that bind and precipitate substances causing turbidity, the stability of the beer in the bottle or barrel can now be substantially increased.

**Product advantages**
The optimum use of BECOSORB guarantees maximum efficiency and economy. Beer losses are avoided due to missing swelling properties. Thanks to their defined particle size, extremely uniform surface structure and optimum pore size, BECOSORB products have no negative influence on protein components that are important for foam stability.

BECOSORB offers the following specific product advantages:
- selective adsorption of protein fractions causing turbidity
- no negative influence on components that are positive for foam stability
- high efficiency thanks to properties that support the filtration process
- can be easily combined with PVPP products and kieselguhrs
- chemically inert, therefore neutral flavour and aroma

BECOSORB is safe to use in accordance with German beer purity regulations, with German and EC regulations on food manufacture as well as with the US-FDA (Food and Drug Administration) requirements concerning the production of beverages.

**Product characteristics**
Silica gel – a highly pure amorphous silicum dioxide - is used for the selective adsorption of protein matter that causes turbidity in beer. With its BECOSORB line, BEGEROW offers three different silica gels formulated especially for beer stabilization.
Application

BECOSORB products can be used in all common stabilizing methods:

1. Settling method:
   In this method BECOSORB is evenly added into the beer pipe during pumping from one to the other tank.
   - during hosing from the fermenting to the storage cellar
   - during any necessary repumping before the end of storage

   Advantage:
   - longer contact time with the beer to be stabilized
   - lower charge of the sludge space in the DE-filter

2. Stream contact process:
   The most common method is to add BECOSORB together with the kieselguhr in DE-filtration. In this way it is possible to replace a part of the kieselguhr used for the body feed. The saving corresponds to approximately 50% of the used silica gel quantity. Example: Adding 30 kg BECOSORB to the body feed saves 15 kg kieselguhr.

   BECOSORB can be added in the following alternative ways:
   - directly into the dosing unit together with the kieselguhr
   - into a stabilizing tank with a separate dosing unit

   Advantage:
   - easy to handle
   - making use of the filtration-supporting effect of silica gel
   - cutting down on kieselguhr
   - disposal together with the kieselguhr sludge
   - no silica gel in the yeast after storage

By means of a dosing unit at the beginning of the beer pipe directly behind the blending table. The stabilizing effect is improved by a longer contact time.

Stream contact process

2. VA: 30-50 g/m²
Dosage: 30-120 g/hl
Products

The following BECOSORB products are available for individual requirements:

**BECOSORB 1000**
A non-swelling xerogel (maximum moisture content 10 %) with a coarser particle size distribution corresponding to a fine kieselguhr quality (> 0.017 Darcy).

**BECOSORB 2500**
A saturated non-swelling xerogel with a moisture content of approximately 40 %. Defined particle size distribution similar to BECOSORB 1000. The Darcy figure corresponds to a fine kieselguhr quality (> 0.015). Through its higher moisture content the product forms only little dust and is more user friendly.

**BECOSORB 6000**
A typical silicic acid-hydrogel with a moisture content of approximately 60 % and a permeability corresponding to that of a medium-fine kieselguhr (> 0.08 Darcy). The high moisture content guarantees a dust-free handling and more convenience.

Darcy is the unit of measure for the permeability of a porous bed for liquids.

**Shelf life of the beer and required quantities of BECOSORB**

<table>
<thead>
<tr>
<th>Amounts that have proven useful in practice:</th>
<th>Quantity BECOSORB 1000</th>
<th>Quantity BECOSORB 2500</th>
<th>Quantity BECOSORB 6000</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 – 4 months</td>
<td>15 – 20 g/hl</td>
<td>25 – 30 g/hl</td>
<td>40 – 60 g/hl</td>
</tr>
<tr>
<td>4 – 6 months</td>
<td>20 – 40 g/hl</td>
<td>30 – 60 g/hl</td>
<td>60 – 80 g/hl</td>
</tr>
<tr>
<td>6 – 12 months</td>
<td>40 – 80 g/hl</td>
<td>60 – 120 g/hl</td>
<td>80 – 140 g/hl</td>
</tr>
</tbody>
</table>

In practice, it is possible to combine BECOSORB with PVPP; this can considerably reduce the required quantities.

For more information about storage and handling: see Technical Information

**Required quantities**

The average quantity for the body feed is between 15 and 140 g/hl, depending on the composition of the beer and on the BECOSORB product selected. Basically, it is recommended that 50 g/m² be added in the 2nd precoat filtration stage as this will considerably improve the stability results.
Divergan® F

Single-use PVPP for stabilising beer
**Chemical name**
Poly-1-(2-oxo-1-pyrrolidinyl)ethylene

**Structural formula**

![Structure](image)

**Molecular formula**
\((C_6H_9NO)_n\)

**Molar mass**
Cannot be determined as it is insoluble in all common solvents.

**Description**
White, hygroscopic powder with a faint characteristic odour. Divergan® F is cross-linked polyvinyl pyrrolidone (PVPP) that has been manufactured by a patented polymerisation process (DP 2437629). It is insoluble in water and all the usual organic solvents.

**Specification**
- Water (Karl Fischer) ≤ 5.0%
- pH (1% in water) 5-8
- Arsenic ≤ 2.0 mg/kg
- Residual Monomers (GC):
  - Vinylpyrrolidone ≤ 10.0 mg/kg
  - Divinylimidazolidinone ≤ 2.0 mg/kg
- Swelling volume ≤ 6.0 l/kg
- Nitrogen (KJELDAHL) 11.0-12.8%
- Residue of ignition ≤ 0.4%
- Heavy metals as lead ≤ 2.0 mg/kg
- Soluble matter:
  - in acetic acid/ethanol/picoline ≤ 1.5%
  - in water ≤ 0.5%
  - in acetic acid/ethanol ≤ 1.0%
- Effectiveness of adsorption:
  - catechin ≥ 55%
  - salicylic acid ≥ 30%
- Odour corresponds
- Taste corresponds

**Function**
Haze in beer is caused mainly by polyphenol-protein complexes. Divergan® F selectively adsorbs the polyphenols that cause turbidity. Removing the excess responsible for this problem considerably improves the colloidal stability of beer.

There is evidence that this also improves the stability of the taste, as the flavonoid polyphenols, in particular, are prone to polymerise to products of higher molecular weight that have a bitter taste.

**Application**
Divergan® F is added to the beer as an aqueous suspension prior to filtration. To be fully effective, it must be in contact with the beer for at least 3 minutes before it is completely removed again by filtration together with the adsorbed polyphenols.

Divergan® F can also be used at an earlier stage in the production of beer, e. g. during wort treatment or in the storage tank.

However, best results are obtained if the beer has already been largely clarified, e. g. by centrifugation, as the active surface cannot then be blocked by suspended material.

A low oxygen content is required for good stabilisation results.
1. Preparation

For Divergan® F to develop its full activity, it must be suspended in degassed water before use. It is ready for use after about 1 hour, when it is fully hydrated. The hydration process can be accelerated by using warm water (about 50 °C).

If the suspension is to be continuously metered, it must be constantly stirred. For best results, a blanket of CO₂ should be maintained over the suspension to keep out oxygen.

2.1 Continuous metering

The preferred method of introducing Divergan® F is to meter it continuously into the beer stream with a metering pump.

If no separate metering unit is available, the Divergan® F can be added together with the filtration agent, usually kieselguhr. Provision must be made for a contact time of at least 3 minutes. In calculating the contact time, the sludge capacity of the filter must also be taken into account.

In some breweries, silica gel is added together with the PVPP to the same supply tank. This gives a highly efficient combination of filtration and stabilisation effects that also saves on capital investment, as no further equipment is required (Fig. 1).

2.2 Addition to the storage tank

The Divergan® F suspension can also be metered into the storage tank. If it is added to the full tank, proper mixing must be ensured, while if it is metered in when the tank is being filled, the turbulent conditions provide adequate mixing.
Quantity

The optimum rate of addition depends on many factors. A major factor is the stability to be achieved – shelf lives of more than 12 months are possible. Other factors include the raw materials used, the cellar equipment, the degree of clarification prior to filtration, and the type and quantity of other stabilising auxiliaries used.

<table>
<thead>
<tr>
<th>Divergan® F alone</th>
<th>Divergan® F when combined with silica gel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beer brewed from 100% malt</td>
<td>20–40 g/hl</td>
</tr>
<tr>
<td>Beer brewed with adjuncts (ratio approx. 30%)</td>
<td>10–30 g/hl</td>
</tr>
</tbody>
</table>

Table 1: Addition rates for Divergan® F

Approvals and safety

Divergan® F is sold throughout the world and meets all the current laws and regulations.

PVPP was approved for use as a fining agent for beer in Germany as long ago as 1973 (Bundesministerium für Jugend, Familie und Gesundheit (BMJFG), 19 June 1973, Ref. No. L II 8-49 780-8118/73).

The requirements for breweries that do not fall within the scope of the German beer law can be found in the Food Chemicals Codex, the regulations of the European Union, the Japanese registration authorities, and the Code of Federal Regulations of the Food and Drug Administration. These monographs also cover the use of PVPP in other areas of the beverage industry. Divergan® F is not harmful to health if it is properly handled and used for the purpose intended.

The usual precautions against dust should be taken.

Transport and storage present no hazard to humans or the environment.

Storage

Divergan® F should be kept in closed containers in a dry place to maintain its effectiveness.

It can be stored for 3 years in the original unopened containers without loss of activity.

Packaging

Divergan® F is available in 30 kg containers. Sample quantities are available in 500 g containers.

Product No.

10060146 kosher

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

July 2005