

Stabifil™

Convenient, Robust and Economic Stabilisation of Beverages

Porvair is a leading manufacturer of porous polymeric materials and filter cartridges. Stabifil™ has been developed as a unique technology that is at the interface of Porvair's filtration and porous material technology. The unique manufacturing process allows contact between the adsorbent and the beverage to be at its optimal.

The module design maximises performance and packing density. These serviceable modules are supplied in purpose designed modular housings, sized around common industry standards. The length and number of these units can be configured to meet flow rate and batch size requirements.

Stabifil™ is highly flexible due to the robustness of the composite material, which enables it to be easily incorporated into any process where beverage stabilisation is required.



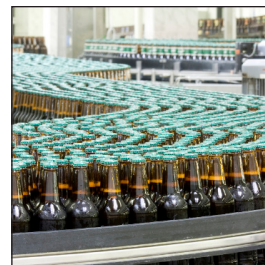
Applications

- **Beer Stabilisation**
Removal of haze-active polyphenols to allow beer to be stored and minimise reduction in clarity. Reduce chill haze in beers that are served extra-cold.

Options

Porvair Filtration Group manufactures a range of related products suitable for the following applications:

- **Wine Stabilisation**
For the elimination of haze, to enhance clarity.
- **Spirits**
Reduction of haze caused by trace amounts of polyphenols prevalent in raw materials e.g. brandy.
- **Vinegar**
To ensure a clear and stable product by removing trace amounts of haze-active polyphenols.
- **Fruit Juice**
To enable a clear product to be manufactured and stored. Apple juice, coconut juice and grapefruit juice are typical applications.
- **Ice Tea**
To remove astringency and improve the product's taste in 'real' iced teas.



Features and Benefits

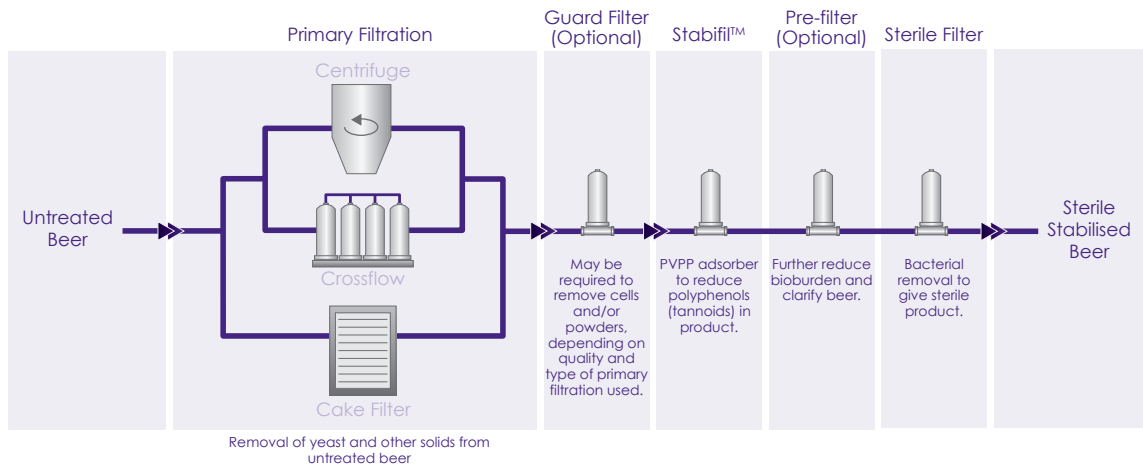
- Easy regeneration**
 Hot caustic regeneration can be performed in-situ and with material fully enclosed, making integration and operation safer and easier.
- Robust characteristics**
 Higher pressure drops are feasible with no hysteresis and damage as compared to powder beds.
- Clean and safe process**
 No requirement to handle loose powder with associated risks to operators, equipment damage and loss of adsorbent.
- Flexible and dynamic stabilisation**
 Degree of stabilisation required can easily be altered by changing the flow rate to increase or decrease the contact time between the adsorbent and the beverage at any stage during the process.
- Capacity is easily increased at minimal cost**
 More processing capacity or higher stabilisation are achieved by increasing the number of modules.
- Accurate and reproducible**
 Polymer matrix and adsorbent are precisely manufactured to ensure the dosage is accurate to minimise batch-to-batch variation.
- Minimal loss of beverage in adsorbent media**
 The beverage is easily expelled from the matrix, which has low liquid retention properties.
- Low capital cost and investment**
 Low cost filter housings available to facilitate each module. A minimal amount of technical training is required prior to operation.

Cartridge Construction

Stabifil™ cartridges are constructed from FDA CFR Title 21 tested materials that are proven to be food-safe and meet EC 10/2011. Stabifil™ cartridges do not contain 'soluble additives' and hence meet the requirements of German 'Beer Purity Laws'.

Stabifil™ cartridges are built using technology that is unique to **Porvair's** filter cartridges and porous polymers. No glues or resins are used to bond the adsorbent, polymer or cartridge hardware.

Stabifil™ within the Treatment System



Specifications

Materials of Manufacture

Filter media: Vyon Porous Polyethylene cosintered with Polyvinylpyrrolidone (PVPP)
End fittings: Polypropylene
Hardware: Stainless Steel 316 or 316L

Cartridge Dimensions (Nominal)

Diameter: 180mm (7.09")
Length: 1000mm (39.37")

Gaskets and O-Rings

FDA approved Ethylene Propylene, Silicone, Viton® or Nitrile.

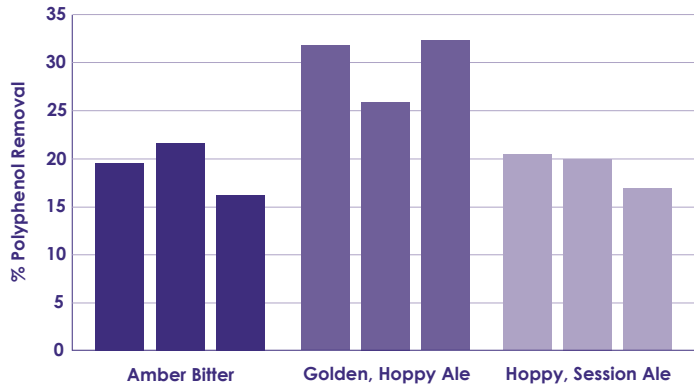
Operating Temperature

Maximum continuous: 80°C (176°F)

Product Evaluation

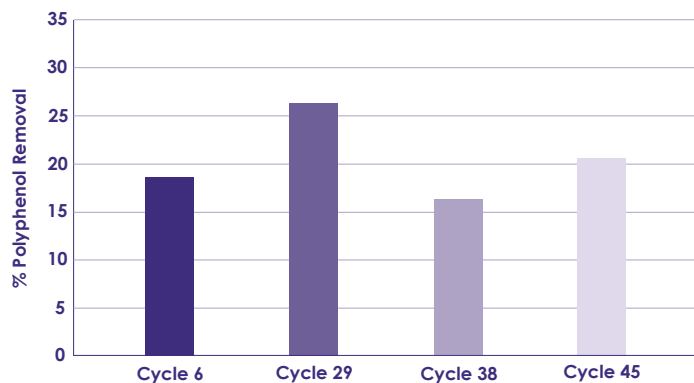
The chart below shows polyphenol removal from various types of beer by the same Stabifil unit, at an equivalent dosing rate of 26 g/hL.

Polyphenol removal- various beers



For every beer type, effective and consistent removal was achieved. The second chart shows how polyphenol removal for a particular beer type changed throughout the life of the Stabifil unit.

Polyphenol removal- specific beer after 'x' cycles



The tests used a Stabifil™ in the form of a **Porvair** J-type module. The selected flow rate gave an adsorbent/beer contact time of 25 seconds. After every processing cycle, the system underwent *in-situ* regeneration with caustic and reverse-osmosis water. A nitric acid wash was added every 3rd regeneration cycle to negate any effects of beer stone formation.

No loss in performance was seen after 50 processing and regeneration cycles. Circulation of hot caustic was used to simulate a further 150 regenerations with no adverse effects. Furthermore, no powder was present in any processed beer or effluent stream.

Additional Information

Range

In addition to the standard modular housing, **Porvair** can design and provide a bespoke solution upon request.

Quality Assurance

Stabifil™ cartridges are manufactured in an ISO Cleanroom environment by staff fully gowned to minimise any risk of contamination during production.

Registered to ISO 9001, **Porvair Filtration Group** procedures are subject to high standards of quality assurance as demonstrated through its Drug Master File status.

Material Conformity and Validation

The bio-safety of all materials in the manufacture of Stabifil™ cartridges is assured by FDA approval and meets or exceeds the latest EC Directives for Food Contact.

Chemical Compatibility

The Stabifil™ materials of construction are compatible with a wide range of chemicals and solvents, however care must be taken to select the appropriate seal material. The cartridges have been tested with typical 'Cleaning in Place' chemicals used in beverage processes. Since operating conditions vary considerably between applications, verification by the end user is recommended.

Filter Housings

Please contact a **Porvair Filtration Group** representative for further information on our range of filter housings.



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