



Cost reduction potential by using regenerative filter aids/stabilizers

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Executive summary

Worldwide, beers are usually filtered using kieselguhr (KG), which needs to be disposed with the filtered residues. If long shelf life is requested, beers need to be stabilized as well. Beside the regenerative PVPP, all other stabilizing aids are single-use and therefore impair profit margin.

Crosspure®, a polymer that consists of polystyrene & PVPP, offers a cost-competitive alternative to the usual filtration and stabilization process. It's a combined filter & stabilization aid, which can be regenerated and used in well-established filter units such as horizontal and candle filters.

Value chain of beer production

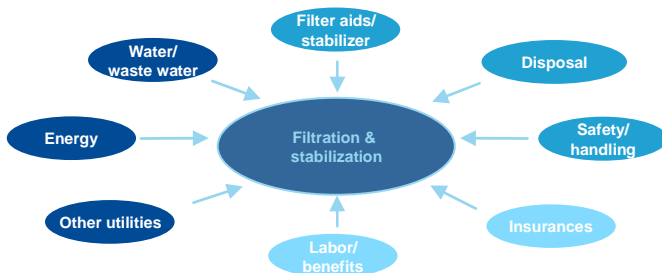
The value chain of beer production is as follows:



An area of cost reduction by using regenerative materials is the filter cellar. Filtration is normally carried out by using KG which is being disposed after its usage; either as landfill material or on industrial waste dumps. For premium beer production, stabilization methods such as single/regenerative PVPP and/or one-way silica gel treatment are often used. Although a PVPP filter line comes along with an investment, running cost per hl basis are significantly lower than for one-way material.

Main cost drivers of beer filtration

The costs, which arise during beer filtration, can be categorized in labor, raw material and other costs. The following chart shows a summary of the cost drivers.



A breakdown of KG costs combines all costs for fresh as well as for used material. In general, costs arise for external & internal transport and accordingly storage, purchase of unused KG (incl. duty & VAT) and finally disposal costs.

Pro's and con's of regenerative filter aids and stabilizers

Con's

- Investment requires a certain return
- Increased consumption of chemicals, energy and water (incl. waste water production)
- Higher raw material costs at filter start up

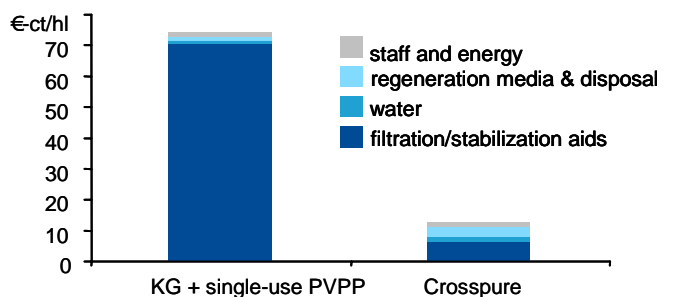
Pro's

- No separate dosing system required (silo/bulk)
- Low losses due to established technology
- Reduced personnel due to automated system
- No disposal costs (compared to KG)
- No environmental and health constraints
- No heavy metal uptake leading to a better flavor stability

A case study: Crosspure filtration

Crosspure consists of two polymers: Polystyrene (70%) and PVPP (30%). It offers:

- **2-in-1 solution:** filtration & stabilization in one filter
- **1-for-2 solution:** one filter line (KG & PVPP) results in two Crosspure filters after retrofitting
- Reduced overall filtration/stabilization costs as shown below



Summary

- Reduce inventory to maximize profit
- Discussion of filter aids and safe handling ongoing
- Disposal of KG might be more problematic in future
- Crosspure offers combined filtration/stabilization
- No disposal of used polymer (regenerative)
- 2-in-1 solution: filtration & stabilization in one filter
- 1-for-2 solution: one filter line makes two CP filters
- Filtration costs per hl of beer are ≤ current ones
- No heavy metal uptake leads to a better flavor stability

Acknowledgement

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