Abstract

Viscose specialty fibres are likely to be a future filter aid for precoating filtration as they give high process flexibility, are bio-based and fully biodegradable, bear no health risks and are therefore easy to handle and to dispose and – the most important criterion – they help obtaining an optimum product quality without altering the taste.

Requirements for the Solution

Technological requirements

- Bright filtrate with minimum turbidity
- Improvement in the physical stability of the beer
- High microbiological safety for the filled product

Process-related requirements

- High filter service life
- Low operating costs
- Easy operation
- Controllable flexibility

Functional viscose fibres

- Beer is a natural beverage made from renewable raw materials.
- Fluctuations in the quality of the raw materials and product from year to year are natural and unavoidable.
- The brewhouse process has to compensate these fluctuations.

- They should not be allowed to influence the capacity.

Materials & Methods

Test equipment:

Lab filtration unit
Glass filter chamber with 55mm diameter
Viscos fibres
Reference beer (specialty reference recipe ©)

Fig. 1: Lab filtration unit

Viscose specialty fibres are regenerate fibres:

- They are no natural cellulose.
- It is a man-made fibre made of cellulose.

Tailor made fibres allow specific influences:

- Diameter, length, cross-sectional form, shape
- Functional groups
- Adsorption additive functions

Selected Results of the Viscose Fibre Development

The presented results start with the analysis of permeability and use the compressibility of alternative filter aids to achieve the necessary cut-off:

Fig. 2: Variety of tailor made viscose fibres

Fig. 3: Permeability of different fibre shapes and lengths

Fig. 4: Precoced and compressed cake of two exemplary filter aids (25°C EBC (blue) - 90°C EBC (yellow))

Fig. 5: Resulting pressure differences according to cake flow

Fig. 6: Turbidity curves for the comparison of a reference beer filtration with viscose fibres (Denuit 25°C left) and diatomite (right) (run lengths are normalised)

Fig. 7: Concluding exemplary filtration at the pilot plant in the brewery

Conclusion

Viscose specialty fibres are likely to be a future filter aid for precoating filtration as they give high process flexibility, are bio-based and fully biodegradable, bear no health risks and are therefore easy to handle and to dispose and – the most important criterion – they help obtaining an optimum product quality without altering the taste.

References

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