



# Crossflow Filtration

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# OLD Filtration Equipment

Old, manual technology.

High Losses

Powder handling is risky and has health implications.

Board changes take 2 days on OT and cost £1.80 for each board every 5 weeks.

Messy cake removal



# New Tank Farm 2011-2014



# April 2014 – 1 HL Trial Unit





# The Centrifuge



- 300 HI/Hr
- 4800 rpm



# The Membranes

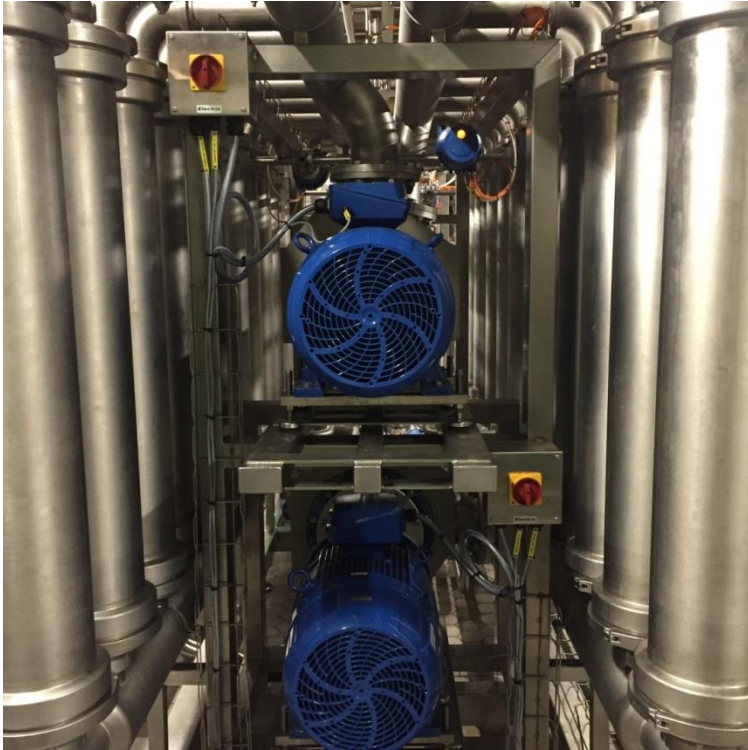


- Polyethersulfone (PES)
- 28 membranes in 4 clusters of 7
- 0.65 micron
- Hire not Buy!





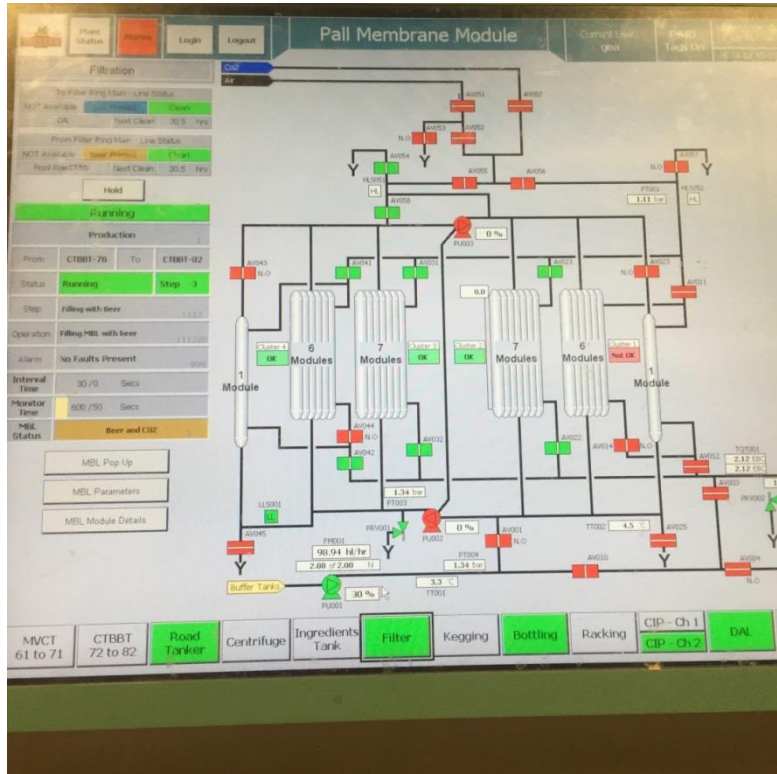
# The Membrane Block (MBL)



## Animation



# SCADA control





# Cleaning

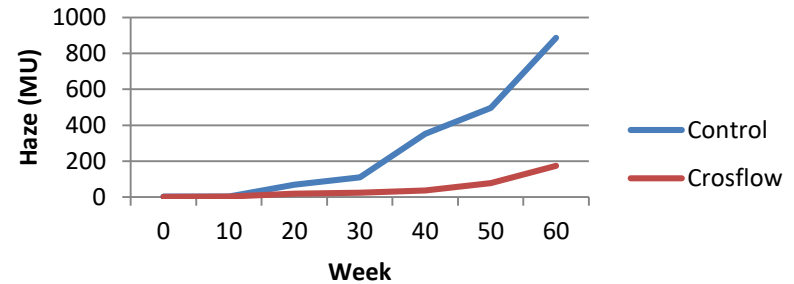
- Dedicated Membrane cleaning units
- Detergent preparation / holding tank
- Typical sequence: warm water / caustic / acid / fresh water / DAL
- Sanitisation up to 74°C



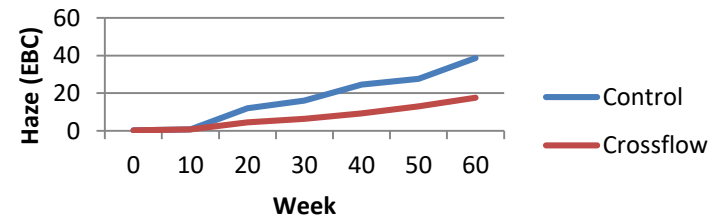
# The Results

- Improved accelerated haze result
- Reduced DO by 0.1ppm
- No significant taste differences
- Reduced colour drop
- Losses < 1%

Monitek



Vos





# The next steps

- Optimise interfaces
- Phase 2 – CBS – continuous beer stabilisation with regenerable PVPP

