Energy Saving in Evaporation & High Concentration Section of Caustic Plants

Bertrams Chemical Plants Ltd

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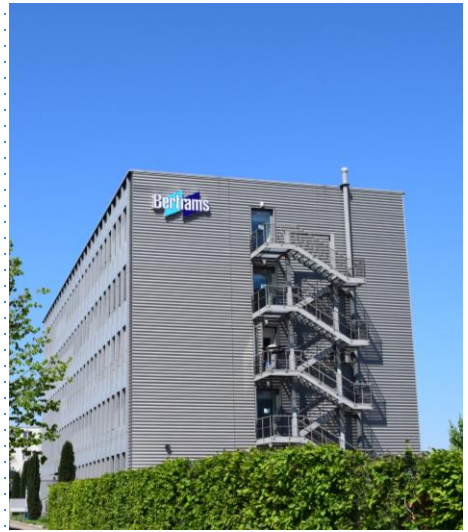
Bertrams at a glance

- **History** 1894 Foundation of Bertrams Ltd. as a stove pipe manufacturer
  - BCPL 1999 M.B.O. (management-buyout), continuing the activities of Bertrams Ltd. in the field of chemical plants
  - BCN 2011 Opening of Beijing office
  - BCT 2016 Manufacturing site, Taicang
  - BIPL 2023 Bertrams India Pvt. Ltd.
- **Asset** Net Equity > CHF 11 Mio.
- **Annual business** approx. CHF 50 Mio.
- **Head office** Muttenz , Switzerland
- **Workforce** approx. 100 employe
- **Certification** ISO 9001 since 2001



Services and activities – Chlor/Alkali industry

- Feasibility study including lab test
- Basic engineering
- Detail engineering
- Plant construction
  - Engineering
  - Supply of key components
  - Turn-key installations or skid unit
- Field services (check of assembly, commissioning, start-up)
- Customer Service
  - Optimization of operation
  - Spare part business
  - Revamping

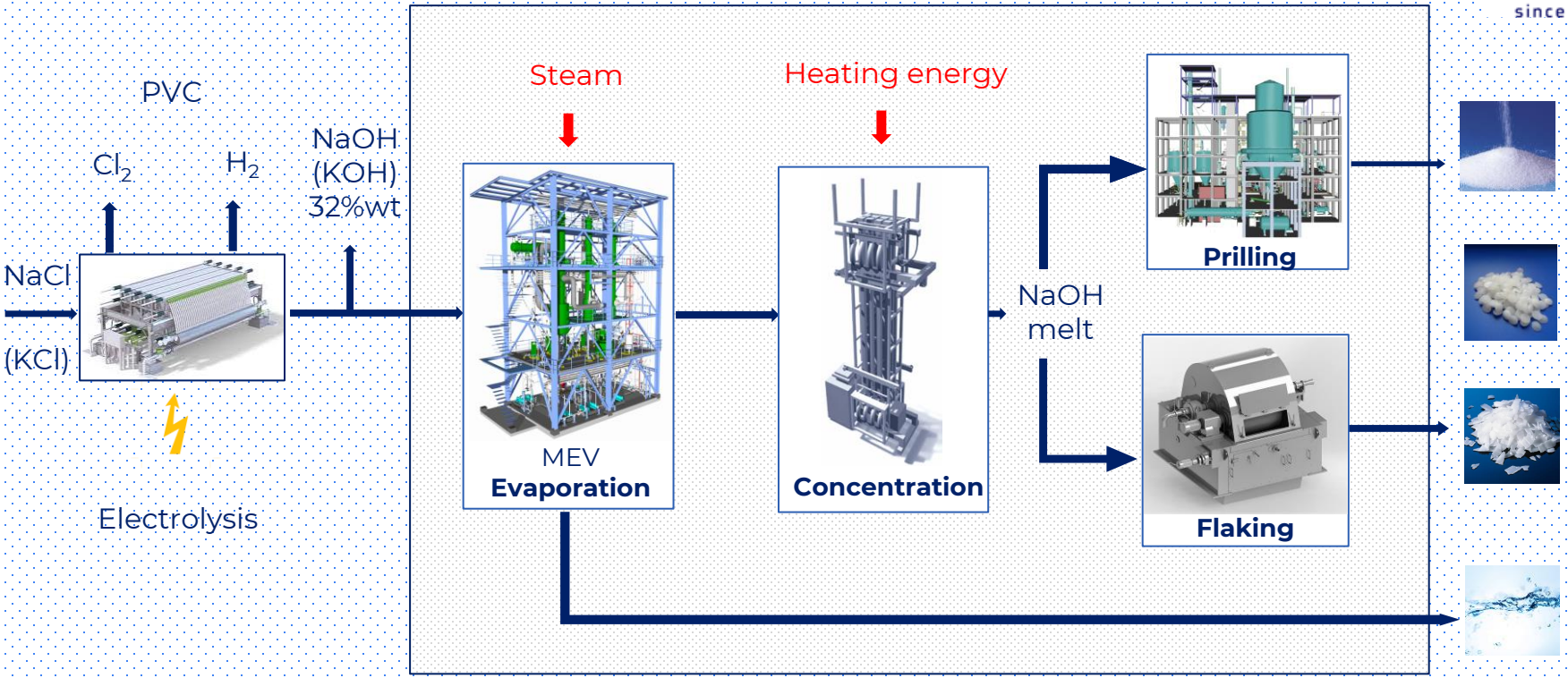
Scope of products – Chlor/Alkali industry

- Evaporation plants (MEV) 32 - 50% NaOH / KOH
- High concentration plants (50% to anhydrous)
- Flakers for production of caustic flakes
- Prilling plants
- Carbonation plants (K_2CO_3 / Na_2CO_3)
- Calcium chloride production plants ($CaCl_2$)
- Sulphuric acid concentration unit for chlorine drying application

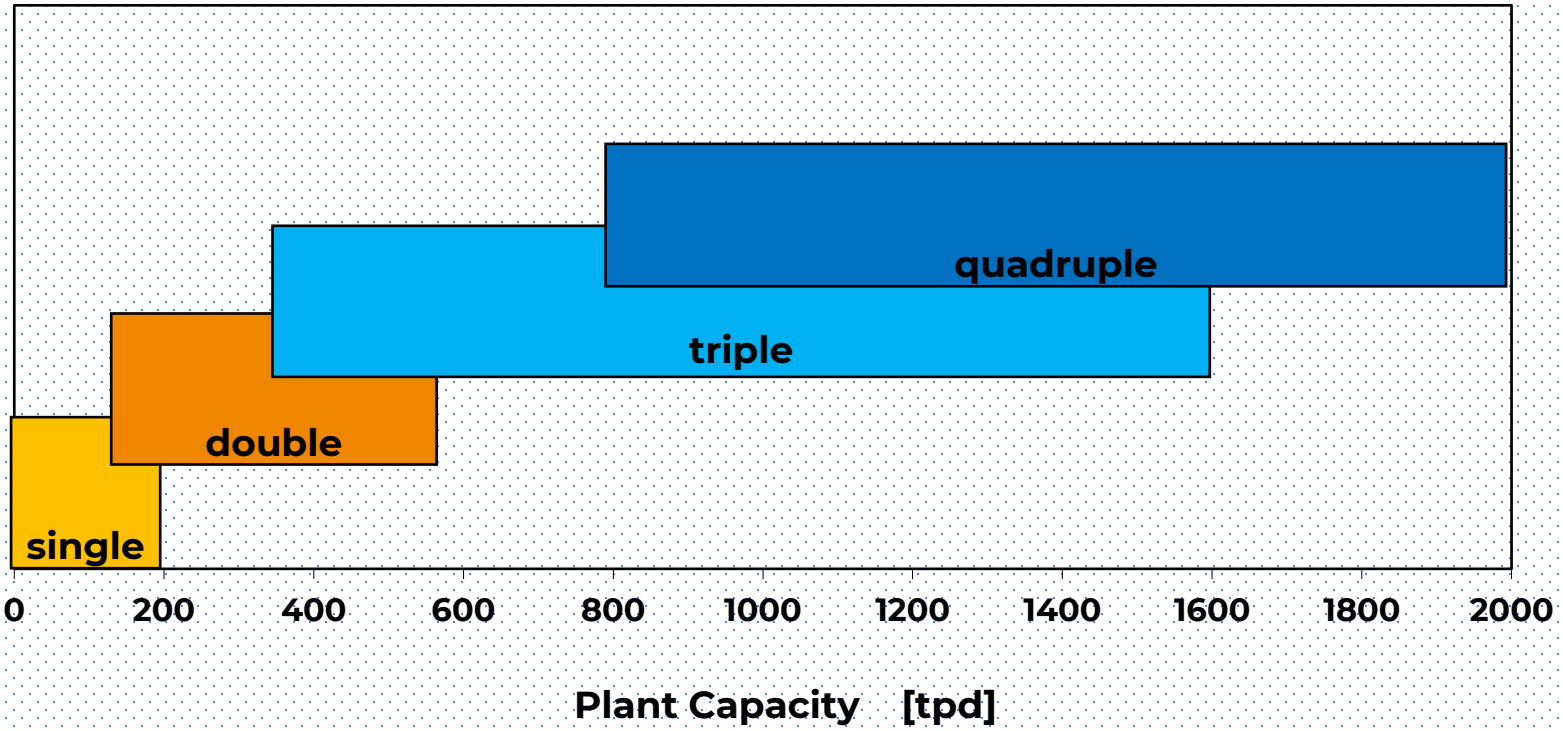




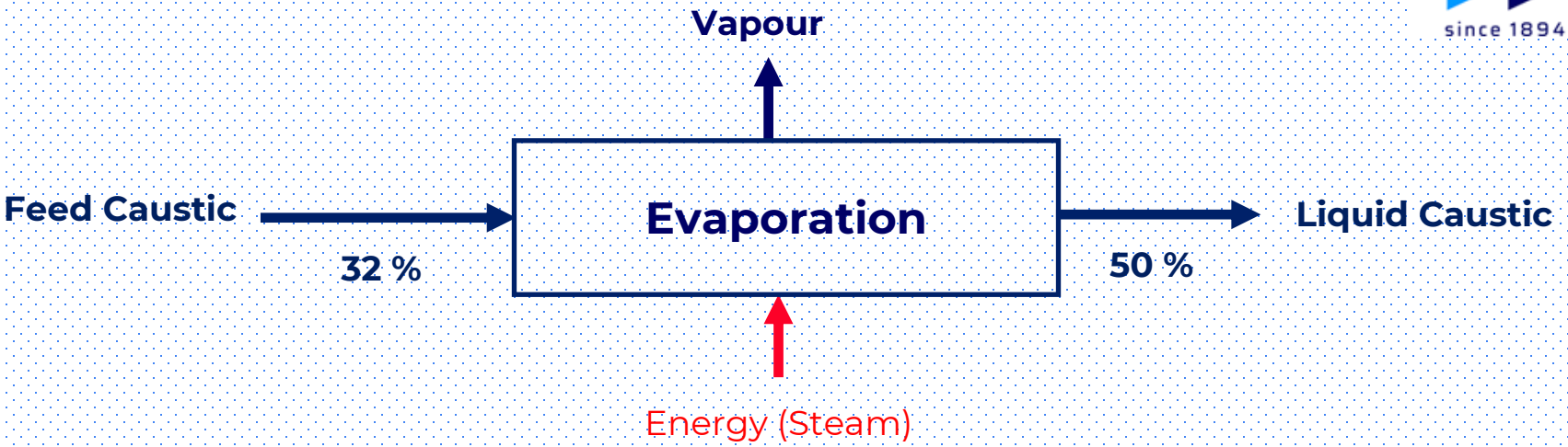
BCPL ‘s Field of expertise – Chlor/Alkali industry



Guideline for the selection of the type of evaporation unit



Evaporation plants (MEV)

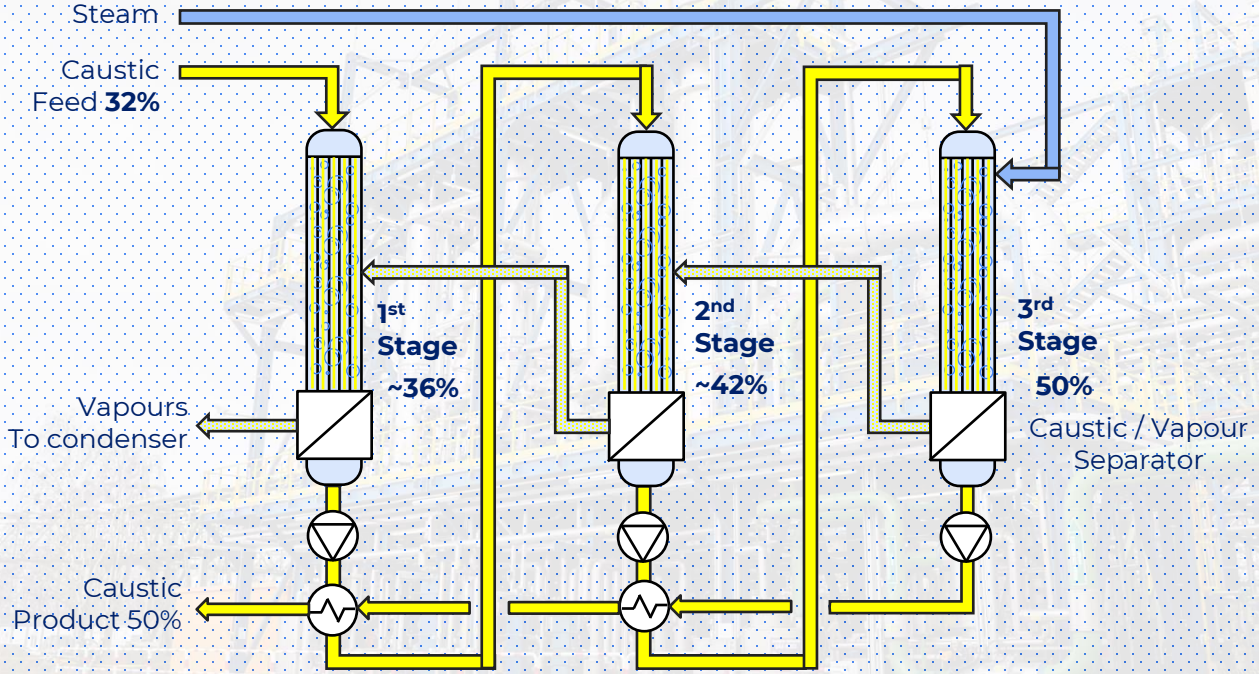


	Steam consumption*	CO2 emission*
Single effect	1500	220
Double effect	750	120
Triple effect	500	80
Quadruple effect	390	65

** kg/ton of NaOH 100%*

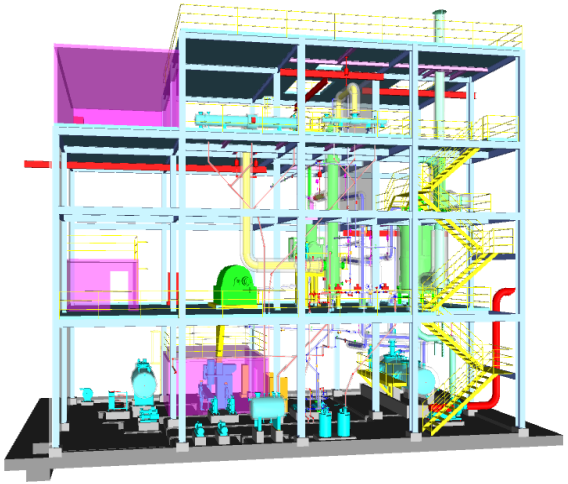
Multiple effect caustic evaporation

Example of a triple effect evaporation plant



High Concentration plant

- Concentration of NaOH up to **99%** wt. or KOH up to **90-95%** wt.
- Single or multiple stage design based on:
  - Targeted capacity
  - Energy cost
- Heat transfer medium required (molten salt)
- Heating in operation can be done with fuel such as natural gas, fuel oil, diesel or hydrogen from the electrolyzer
- **By Combining High Concentration section with caustic evaporation plant** we are able to bring down Fuel Consumption from 10,00,000 Kcal/ton to 6,00,000 Kcal/ton



BERTRAMS – selected references

Thank you .

Bertrams

since 1894