DESIGN OF A CHEMICAL BATCH PLANT: a study of dedicated parallel lines with intermediate storage and the plant performance

1. Objective
Production plant with parallel lines

2. Mathematical Model

- Objectives:
  - Minimisation of capital costs
  - Minimisation of setup costs
  - Minimisation of opportunity costs

- Constraints:
  - Design constraints:
  - Demand constraint:
  - Boundaries:
  - Horizon constraints:

- Produce P products i, that need J stages j, on L lines l.

3. Math. model with intermed. storage

- Objective function:
- Opp. cost: ex post calculation
- Case study
- Problem:

5. Results

6. Conclusion

- Contributions:
  - Objective function: including setup costs and opportunity costs
  - Design option - parallel production lines:
  - Intermediate storage tank per line:
  - Future research: relation cost structures and SCOR performance attributes

References

Acknowledgements