

More Capital Efficiency

Minimal intervention with maximum effect

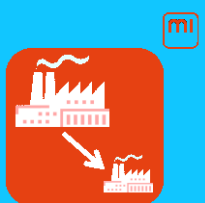
The request of a specialty chemical manufacturer was to double the production volume of a two-stage process, but the possibilities to a spatial extension missing. This and two other problems could be solved with process intensification in one shot!

- **plant capacity doubled**
- **number of process steps reduced**
- **cooling costs eliminated**

Because of a particularly volatile reactant, previously it has been necessary to cool the first reaction and the intermediate product extensively, and afterwards for the second reaction step, heated to a higher temperature level again.



Energy



Space



Perfect Results

By process intensification and use of a suitable micro structured reactor, the capacity of the existing plant has been doubled to 3.6 t / h and one process step could be saved.

By increasing the pressure in the total system the boiling point was raised, the reaction rate increased and the costs of cooling were eliminated.