

**Some typical examples of process improvements are provided – this list is by no means exhaustive but is put up to give clients a flavor of our range of expertise. Our strengths in technology and business processes when combined with the client’s product knowledge deliver powerful results and significant improvements in operations and commercial performance.**

- Recycle and recovery of process water/ energy from waste streams
- Capacity increase in established processes by pinch technology, 20-40%
- 90 – 95% water recycle from chemical effluent streams
- Near total recovery of steam condensate to boiler houses

Process intensification – some examples

- convert batch to continuous processes to improve process yields/reduce conversion cost/plant footprint: 2 large implementations - Triphenyl phosphite (from 20MT/mth to 600MT/mth) and Boron Trifluoride complexes (from 5MT/mth to 60MT/mth)
- Revamp STPP manufacturing process to improve P<sub>2</sub>O<sub>5</sub> yield from 67% to 88%
- Improve recovery by superior filtration processes – organics, inorganics, effluent
- Recovery of HF from phosphoric acid reaction waste gases
- Continuous ‘green’ process for making an intermediate for Ibuprofen using Hydrogen Fluoride as a Friedel Crafts catalyst (as opposed to a high effluent generating batch process) and delivering superior product purity profile
- Unconventional solvent extraction and concentration techniques for heat sensitive chemicals and foods for better product specifications and lower impurity profile making them export-worthy
- Novel HTST process for sterilizing pasty foods
- Unconventional HACCP compliant process for aroma retention in spices during processing
- Reduction of residence time and inventory of WIP in manufacture of gelatin
- Process re-design for reduction of bloaters in retorted foods
- Process re-design for a hundred fold reduction in WIP in manufacture of malt whiskey