Appendix A. Summary of key process operating conditions for the Case Study

(LOD is the level of dampness in solids)

Stage	Key process conditions
1. Reaction	77 wt% ± 3 wt% actA purity API feed solids and catalyst. 2 mol eq. (ratio to feed actA) reG solids. 10.4 mol eq. (ratio to feed actA) 30% aq. reH solution, controlled addition rate to maintain a constant temperature, T_1. Maintain a constant temperature, T_1 ± 1 C°, throughout entire
2. Dilution	1 volume eq. (ratio to Stage 1 reH) distilled water. 15 min agitation period.
3. Layer separation	30 min settling period. Drain heavy organic phase to parallel vessel.
4. reH destruction	0.4 mol eq. (ratio to feed actA) 6% aq. baseI solution per shot, pending litmus paper test for residual reH presence. 15 min agitation period.
5. reG destruction	0.7 mol eq. (ratio to feed actA) 50% aq. baseJ solution. Agitate mixture for 120 min at a constant temperature, T_5.
6. Layer separation	30 min settling period. Drain heavy organic phase to original vessel.
7. pH neutralisation	0.7 mol eq. (ratio to actA feed) baseK solids 15 min agitation period.
8. Layer separation	30 min settling period. Drain heavy organic phase to parallel vessel.
9. solF distillation	Distil solF until vessel minimum stir volume is reached. 1 bar pressure and zero reflux.
10. 1st solL distillation	Add a fraction of the total solL volume:product ratio between 14 and 15. Distil a fraction of the solL. 1 bar pressure and zero reflux.
11. 2nd solL distillation	Add remaining fraction of the total solL volume:product ratio. Distil solL to achieve a final solL volume:product ratio between 7 and 8. 1 bar pressure and zero reflux.
12. Crystallisation in solL	Cool boiling mixture to 25 C° and hold for 60 min. 1 bar pressure.
13. Filtration	Vacuum filter the slurry at a constant temperature, T_{13}, until ~W_{13}% LOD is achieved.
14. Washing	Rinse the damp solids with a 2 volume:product ratio of pure solL at a constant temperature, T_{14}, and refilter to the prior LOD.
15. Drying	Dry with pure N_2 at a high temperature to a low LOD value ~W_{15}%.