

# Supplementary Materials: Analysis and Optimization of Two Film-Coated Tablet Production Processes by Computer Simulation: A Case Study

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**Table S1.** Listing of all integrated process steps with the best fitting statistical distributions according to ExpertFit: It is remarkable that a normal distribution is never the best fitting one. \* Mann–Whitney proved that the historical data of  $P_{INA}$  und  $P_{EMB}$  are not significantly different for these process steps. Therefore, the data of both products were pooled.

Process step	Statistical distribution $P_{INA}$	Statistical distribution $P_{EMB}$
Setup scales (once daily)	Empirical table	Empirical table
Weighing granule with a floor scale	Log-Logistic	Pearson type VI
Weighing granule with a table scale	Gamma	Pearson type VI
Weighing granulation liquid with a floor scale	Beta*	Beta*
Weighing granulation liquid with a table scale	Log-Logistic*	Log-Logistic*
Dissolution of granulation liquid	Log-Logistic*	Log-Logistic*
Compulsory mixer (mixing)	Weibull	Beta
Fluid bed granulation (incl. mixing steps)	Log Laplace	Beta
IPC moisture analysis	Log Logistic	Johnson bounded
Sieving	Erlang	Weibull
Tumble blender (mixing)	Pearson type V*	Pearson type V*
Compaction	Log Laplace	Log Logistic
IPC weighing with a floor scale	Johnson bounded	Pearson type VI
Weighing coating with a floor scale	Beta*	Beta*
Weighing coating with a table scale	Johnson bounded*	Johnson bounded*
Dissolution of coating (dispenser)	Beta	Pearson type VI
Coating	Log Logistic	Beta
Packaging	Log Logistic	Beta

**Table S2.** Listing of additional work steps that are product independent. These times are also included in the models to reflect the capacity utilization of the operators as accurately as possible. As times do not depend on a product, the same fixed times are integrated in all models.

Process step	Duration [min]
Starting of all systems	20
Cleaning of weighing equipment	65
Cleaning of other equipment	56
Weighing after tumble blending	1
Dissolution of coating (Heating plate)	11
Documentation	15
Compaction (Set up)	51