

The potential of continuous manufacturing is being recognized in the pharmaceutical industry. Its numerous benefits, support from the regulatory agencies and established collaborations between academia, industry and regulatory authorities have contributed to the interest in continuous manufacturing. The switch from batch-wise to continuous manufacturing has prompted a wealth of knowledge on the unit operations and the integrated entity of continuous manufacturing. Twin-screw wet granulation (TSWG) is particularly effective for processing formulations with poor flowability or compactibility. Although extensive research has been conducted on the process and formulation parameters, there is still a need for material-saving approaches and linking of material attributes to process performance. Next, controlled release (CR) formulations have been widely acknowledged for their significant benefits, but remain rather unstudied produced via TSWG or semi-continuous pan coating integrated into continuous manufacturing lines. Therefore, the first aim of this PhD thesis was to facilitate binder selection during continuous TSWG by linking binder attributes to binder effectiveness. The second aim is to investigate the production of CR formulations via continuous TSWG and semi-continuous pan coating.