

Supporting Information

# Towards Continuous Primary Manufacturing Processes – Particle Design through combined Crystallization and Particle Isolation

Claas Steenweg <sup>1</sup>, Anne Cathrine Kufner <sup>1</sup>, Jonas Habicht <sup>1</sup>, and Kerstin Wohlgemuth <sup>1</sup>

Table S1: Operating parameters of the integrated process (SFC & CVSF).

Parameter	CP-Q1.1	CP-Q1.2	CP-Q2.1	CP-Q2.2
$Q_{\text{tot}}$ [mL min <sup>-1</sup> ]	20	20	40	40
$Q_{\text{susp}}$ [mL min <sup>-1</sup> ]	10	10	20	20
$\epsilon_{L,0}$ [-]	0.5	0.5	0.5	0.5
$\tau_{\text{SFC}}$ [min]	10	10	5	5
$\vartheta_{\text{SFC,IN}}$ [°C]	50	50	50	50
$\vartheta_{\text{SFC,OUT}}$ [°C]	30	30	30	30
$L_{\text{tubing}}$ [m]	26	26	26	26
$d_{i,\text{tubing}}$ [mm]	3.18	3.18	3.18	3.18
$\bar{\kappa}$ [K min <sup>-1</sup> ]	1.8	1.8	3.6	3.6
$W_s$ [g <sub>solid</sub> g <sub>sol</sub> ]	0.050		0.056	
$\alpha$ [-]	0.210		0.119	
$n_{\text{screw}}$ [rpm]	2	2	2	2
$N_{\text{fil}}$ [-]	1	1	1	1
$n_{\text{VP}}$ [hz]	26.4	26.4	26.4	26.4
$\Delta p_{\text{set}}$ [mbar]	400	400	400	400
$N_{\text{wash}}$ [-]	2	2	2	2
$Q_{\text{wash}}$ [mL min <sup>-1</sup> ]	25	25	25	25
$\tau_{\text{id,CVSF}}$ [min]	15	15	15	15

Table S2: Results of the integrated process (SFC & CVSF)

Parameter		CP-Q1.1	CP-Q1.2	CP-Q2.1	CP-Q2.2
$d_{50,3}$ [μm]	Seeds	215.3	215.3	215.3	215.3
	After SFC	436.3	447.3	416.6	450.8
	After CVSF	387.9	419.3	382.7	423.4
$d_{90,3-10,3}$ [μm]	Seeds	109.2	109.2	109.2	109.2
	After SFC	295.9	312.0	311.8	343.2
	After CVSF	288.9	415.7	296.3	324.2
$Ag_0$ [-]	Seeds	0.57	0.57	0.57	0.57
	After SFC	0.77	0.73	0.72	0.75
	After CVSF	0.52	0.52	0.60	0.71
$n_{\text{part,tot}}$ [-]	Seeds	9051	9051	9051	9051
	After SFC	1440	5698	2780	1856
	After CVSF	2722	1142	13450	6445
$Y_{\text{rel}}$ [%]		70.0	67.9	48.5	40.6
$RM_{\text{ML}}$ [%]		1.1	2.1	1.93	6.05



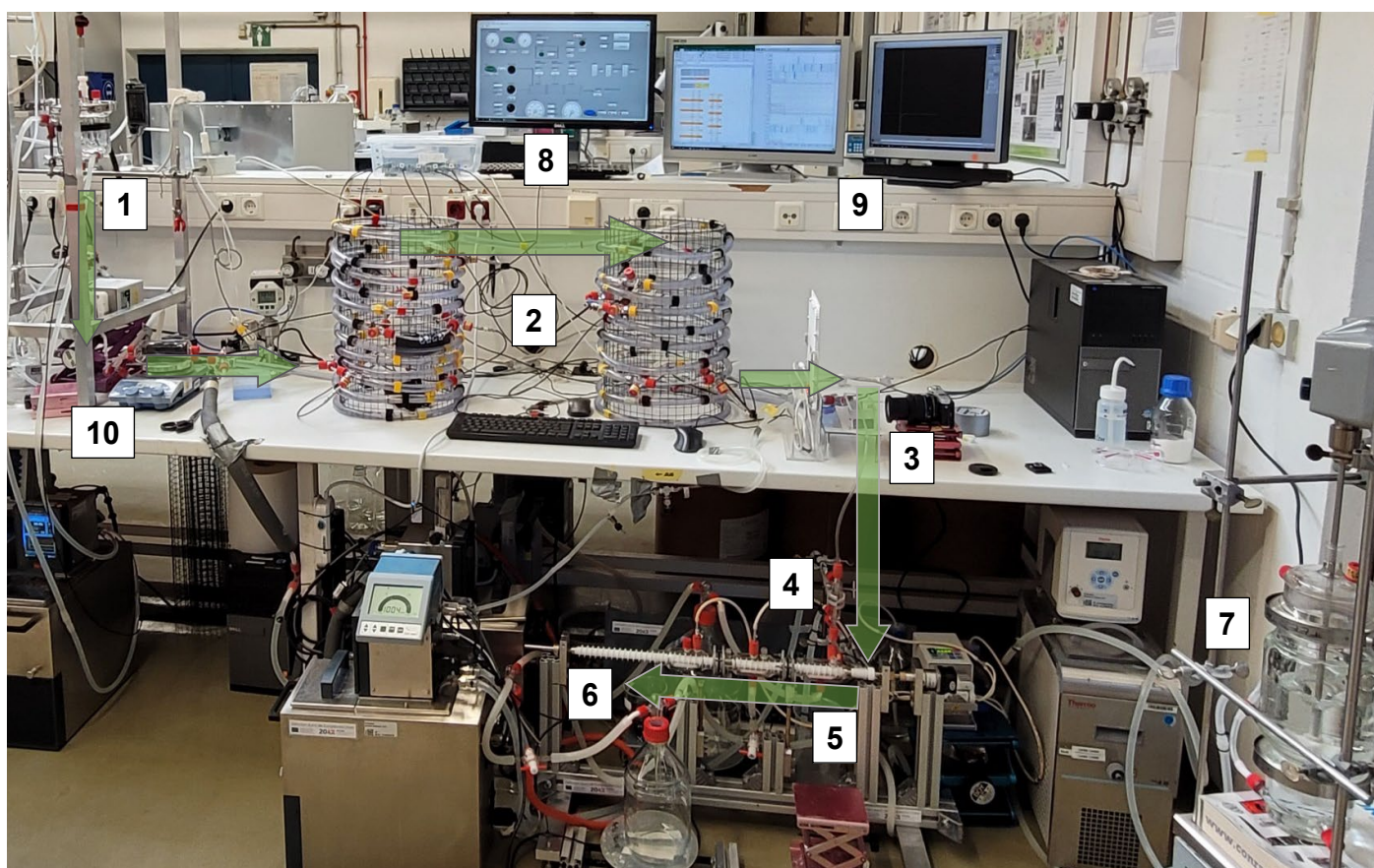


Figure S1: Experimental setup of the integrated process. The material flow is indicated in green arrows. 1: Seed crystal vessel, 2: SFC, 3: connecting element, 4: tube-in-tube heater, 5: CVSF, 6: Filter cake discharge, 7: QICPIC-sample vessel, 8: Control system (CVSF), 9: Control system (SFC)