Rachel Smith

List of Publications by Year
in descending order

61 papers	3,244 citations	236925 25 h-index	149698 56 g-index
65 all docs	65 docs citations	65 times ranked	2280 citing authors

#	Article	IF	Citations
1	Nucleation, growth and breakage phenomena in agitated wet granulation processes: a review. Powder Technology, 2001, 117, 3-39.	4.2	1,021
2	Assessment of Recent Process Analytical Technology (PAT) Trends: A Multiauthor Review. Organic Process Research and Development, 2015, 19, 3-62.	2.7	329
3	Drop Penetration into Porous Powder Beds. Journal of Colloid and Interface Science, 2002, 253, 353-366.	9.4	235
4	Nucleation regime map for liquid bound granules. AICHE Journal, 2003, 49, 350-361.	3.6	195
5	Growth regime map for liquid-bound granules: further development and experimental validation. Powder Technology, 2001, 117, 83-97.	4.2	183
6	A three-dimensional population balance model of granulation with a mechanistic representation of the nucleation and aggregation phenomena. Chemical Engineering Science, 2008, 63, 1315-1329.	3.8	90
7	Particle design via spherical agglomeration: A critical review of controlling parameters, rate processes and modelling. Powder Technology, 2018, 326, 327-343.	4.2	68
8	Granule formation mechanisms and morphology from single drop impact on powder beds. Powder Technology, 2011, 212, 69-79.	4.2	64
9	Experimental validation studies on a multi-dimensional and multi-scale population balance model of batch granulation. Chemical Engineering Science, 2009, 64, 775-786.	3.8	59
10	Wet granule breakage in a breakage only high-hear mixer: Effect of formulation properties on breakage behaviour. Powder Technology, 2009, 189, 158-164.	4.2	55
11	Influence of Particle Size Distribution on the Performance of Ionic Liquid-based Electrochemical Double Layer Capacitors. Scientific Reports, 2016, 6, 22062.	3.3	52
12	Statistical analysis and comparison of a continuous high shear granulator with a twin screw granulator: Effect of process parameters on critical granule attributes and granulation mechanisms. International Journal of Pharmaceutics, 2016, 513, 357-375.	5.2	47
13	Dimensionless spray flux in wet granulation: Monte-Carlo simulations and experimental validation. Powder Technology, 2004, 141, 20-30.	4.2	43
14	Carbon binder domain networks and electrical conductivity in lithium-ion battery electrodes: A critical review. Renewable and Sustainable Energy Reviews, 2022, 166, 112624.	16.4	41
15	A review of pulsed flow fluidisation; the effects of intermittent gas flow on fluidised gasâ€"solid bed behaviour. Powder Technology, 2016, 292, 108-121.	4.2	40
16	A general compartmentâ€based population balance model for particle coating and layered granulation. AIChE Journal, 2012, 58, 1397-1408.	3.6	38
17	Population Balance Model Validation and Predictionof CQAs for Continuous Milling Processes: toward QbDin Pharmaceutical Drug Product Manufacturing. Journal of Pharmaceutical Innovation, 2013, 8, 147-162.	2.4	38
18	A regime map for granule formation by drop impact on powder beds. AICHE Journal, 2013, 59, 96-107.	3.6	37

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19	Distribution nucleation: Quantifying liquid distribution on the particle surface using the dimensionless particle coating number. Chemical Engineering Science, 2013, 92, 134-145.	3.8	34
20	Quantitative analysis of the inhibitory effect of HPMC on felodipine crystallization kinetics using population balance modeling. CrystEngComm, 2013, 15, 2197-2205.	2.6	33
21	A priori performance prediction in pharmaceutical wet granulation: Testing the applicability of the nucleation regime map to a formulation with a broad size distribution and dry binder addition. International Journal of Pharmaceutics, 2011, 418, 254-264.	5.2	32
22	Maintaining Supersaturation of Active Pharmaceutical Ingredient Solutions with Biologically Relevant Bile Salts. Crystal Growth and Design, 2017, 17, 2782-2791.	3.0	31
23	Mechanical Characterization of Protein Crystals. Particle and Particle Systems Characterization, 2008, 25, 266-276.	2.3	28
24	Impact of Endogenous Bile Salts on the Thermodynamics of Supersaturated Active Pharmaceutical Ingredient Solutions. Crystal Growth and Design, 2017, 17, 1264-1275.	3.0	28
25	Evaluating the influence of polymers on nucleation and growth in supersaturated solutions of acetaminophen. CrystEngComm, 2015, 17, 1242-1248.	2.6	27
26	Scaling of continuous twin screw wet granulation. AICHE Journal, 2017, 63, 921-932.	3.6	27
27	Gas permeability, wettability and morphology of gas diffusion layers before and after performing a realistic ex-situ compression test. Renewable Energy, 2020, 151, 1082-1091.	8.9	26
28	Investigation of an 11 mm diameter twin screw granulator: Screw element performance and in-line monitoring via image analysis. International Journal of Pharmaceutics, 2015, 496, 24-32.	5.2	25
29	Impact of Bile Salts on Solution Crystal Growth Rate and Residual Supersaturation of an Active Pharmaceutical Ingredient. Crystal Growth and Design, 2017, 17, 3528-3537.	3.0	25
30	Characterisation of aluminium black dross before and after stepwise salt-phase dissolution in non-aqueous solvents. Journal of Hazardous Materials, 2021, 401, 123351.	12.4	22
31	Granule breakage in twin screw granulation: Effect of material properties and screw element geometry. Powder Technology, 2017, 315, 290-299.	4.2	21
32	A breakage kernel for use in population balance modelling of twin screw granulation. Powder Technology, 2020, 363, 525-540.	4.2	21
33	Breakage of drop nucleated granules in a breakage only high shear mixer. Chemical Engineering Science, 2010, 65, 5651-5657.	3.8	20
34	Coalescence model for induction growth behavior in high shear granulation. Powder Technology, 2015, 270, 435-444.	4.2	20
35	Influence of Surface Wettability on Microbubble Formation. Langmuir, 2016, 32, 1269-1278.	3.5	19
36	Examining the failure modes of wet granular materials using dynamic diametrical compression. Powder Technology, 2012, 224, 189-195.	4.2	18

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37	Model driven design for twin screw granulation using mechanistic-based population balance model. International Journal of Pharmaceutics, 2021, 607, 120939.	5.2	17
38	Multi-scale modeling of a spray coating process in a paddle mixer/coater: the effect of particle size distribution on particle segregation and coating uniformity. Chemical Engineering Science, 2013, 95, 203-210.	3.8	16
39	High-shear granulation: An investigation into the granule consolidation and layering mechanism. Powder Technology, 2019, 355, 514-525.	4.2	15
40	Compositional effect of complex biorelevant media on the crystallization kinetics of an active pharmaceutical ingredient. CrystEngComm, 2017, 19, 4797-4806.	2.6	14
41	A population balance model for high shear granulation. Chemical Engineering Communications, 2003, 190, 1309-1334.	2.6	9
42	Modeling the crystallization of proteins and small organic molecules in nanoliter drops. AICHE Journal, 2010, 56, 79-91.	3.6	8
43	Roller compaction: Infrared thermography as a PAT for monitoring powder flow from feeding to compaction zone. International Journal of Pharmaceutics, 2020, 578, 119114.	5.2	8
44	Experimental validation of a 2-D population balance model for spray coating processes. Chemical Engineering Science, 2013, 95, 360-365.	3.8	6
45	Microstructure of single-droplet granules formed from ultra-fine powders. Powder Technology, 2017, 305, 19-26.	4.2	6
46	Improving feeding powder distribution to the compaction zone in the roller compaction. European Journal of Pharmaceutics and Biopharmaceutics, 2018, 128, 57-68.	4.3	5
47	A new mathematical model for nucleation of spherical agglomerates by the immersion mechanism. Chemical Engineering Science: X, 2019, 4, 100048.	1.5	5
48	Efficient global sensitivity-based model calibration of a high-shear wet granulation process. Chemical Engineering Science, 2021, 238, 116569.	3.8	5
49	Kinetics of immersion nucleation driven by surface tension. Powder Technology, 2018, 335, 62-69.	4.2	4
50	Characteristics of multi-component formulation granules formed using distributive mixing elements in twin screw granulation. Drug Development and Industrial Pharmacy, 2018, 44, 1826-1837.	2.0	4
51	High-shear granulation: An investigation into granule breakage rates. Advanced Powder Technology, 2021, 32, 1390-1398.	4.1	4
52	Tableting model assessment of porosity and tensile strength using a continuous wet granulation route. International Journal of Pharmaceutics, 2021, 607, 120934.	5.2	4
53	The Metastability and Nucleation Thresholds of Ibuprofen in Ethanol and Water-Ethanol Mixtures. International Journal of Chemical Engineering, 2015, 2015, 1-7.	2.4	3
54	A novel method for the analysis of particle coating behaviour via contact spreading in a tumbling drum: Effect of coating liquid viscosity. Powder Technology, 2019, 351, 102-114.	4.2	3

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55	Nuclei size distribution modelling in wet granulation. Chemical Engineering Science: X, 2019, 4, 100038.	1.5	2
56	Application of feeding guiders to improve the powder distribution in the two scales of roller compactors. International Journal of Pharmaceutics, 2020, 573, 118815.	5.2	2
57	Formation and internal microstructure of granules from wetting and non-wetting efavirenz/iron oxide blends. Chemical Engineering Science, 2020, 227, 115909.	3.8	2
58	Îhe role of surface energy in the apparent solubility of two different calcite crystal habits. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2021, 477, 20210200.	2.1	2
59	Granulation and Tabletting. Particle Technology Series, 2016, , 107-136.	0.5	2
60	Model-driven design using population balance modelling for high-shear wet granulation. Powder Technology, 2022, 396, 578-595.	4.2	2
61	Exploring the role of crystal habit in the Ostwald rule of stages. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2022, 478, 20210601.	2.1	1