



Publications

Swelling of food powders: Kinetics measurement and quantification using NMR relaxometry. Food Hydrocolloids 2024 Teichmann, H., Anzmann, T., Haas, K., Kohlus, R.

<https://doi.org/10.1016/j.foodhyd.2024.110169>

Thermal damages in spray drying: Particle size-dependent protein denaturation using phycocyanin as model substrate. Drying Technology 2023 Ruprecht, N.A., Kohlus, R.

<https://doi.org/10.1080/07373937.2023.2243495>

Development of In-Line Measurement Techniques for Monitoring Powder Characteristics in a Multi-Stage Spray Drying Process. Processes 2023 Frank, J., Raiber, T.V., Grotenhoff, L., Kohlus, R.

<https://doi.org/10.3390/pr11071931>

Fluidized bed drying of dairy gel granules supported by the in-line monitoring of water content. Drying Technology 2023 Frank, J., Schlitter, M., Hinrichs, J., Kohlus, R.

<https://doi.org/10.1080/07373937.2023.2216774>

Nozzle zone agglomeration in spray dryers: Determination of agglomeration efficiency in the fines return by means of agglomerate properties and residence time distribution. Drying Technology 2023 Fröhlich, J.A., Ruprecht, N.A., Kohlus, R.

<https://doi.org/10.1080/07373937.2023.2203224>

Using phycocyanin as a marker to investigate drying history and structure formation in spray drying. Drying Technology 2023 Ruprecht, N.A., Bürger, J.V., Kohlus, R.

<https://doi.org/10.1080/07373937.2023.2193977>

A particle shape-based segmentation method to characterize spray dried materials by X-Ray microtomography. Particuology 2023 Ruprecht, N. A., Teichmann, H., Kohlus, R.

<https://doi.org/10.1016/j.partic.2022.12.017>

Innovationen und Trends in der Trocknungstechnik. Chemie Ingenieur Technik https://doi.org/10.1002/cite.202200193	2023	Ruprecht, N. A., Frank, J., Raiber, T. V., Teichmann, H., Gschwind, P., Kohlus, R.
Particle structure development during spray drying from a single droplet to pilot-scale perspective. Journal of Food engineering https://doi.org/10.1016/j.jfoodeng.2022.111222	2023	Eijkelboom, N. M., van Boven, A., Siemons, I., Wilms, P. F. C., Boom, R.M., Kohlus, R., Schutyser, M.A.I.
Photometric extinction measurements to study dissolution kinetic of skim milk powder. International Dairy Journal https://doi.org/10.1016/j.idairyj.2021.105210	2022	Schulnies, F., Teichmann, H., Kohlus, R., Kleinschmidt, S., Kleinschmidt, T.
Influence of Levan on the Thermally Induced Gel Formation of β -Lactoglobulin. Gels https://doi.org/10.3390/gels8040228	2022	Hundscheil, C.S., Brühan, J., Anzmann, T., Kohlus, R., Wagemans, A.M.
Simulation of the oxidation of microencapsulated oil based on oxygen distribution – Impact of powder and matrix properties. Powder Technology https://doi.org/10.1016/j.powtec.2022.117289	2022	Linke, A., Teichmann, H., Kohlus, R.
Macroscopic rheology of non-Brownian suspensions at high shear rates: the influence of solid volume fraction and non-Newtonian behaviour of the liquid phase. Rheologica Acta https://doi.org/10.1007/s00397-021-01320-1	2022	Wilms, P., Hinrichs, J., Kohlus, R.
Single droplet investigation on the levitator to explain the drying kinetics and morphology formation of maltodextrin DE < 3 and DE 21. Drying Technology https://doi.org/10.1080/07373937.2022.2125988	2022	Huelsmann, R., Wiggers, W., Esper, G.J., Kohlus, R.
Nozzle zone agglomeration in spray dryers: Process dependency of the fines mass flow and its importance for agglomerate formation. Drying Technology https://doi.org/10.1080/07373937.2022.2111439	2022	Fröhlich, J.A., Spiess, M., Hinrichs, J., Kohlus, R.

<p>On the difficulty of determining the apparent wall slip of highly concentrated suspensions in pressure driven flows: the accuracy of indirect methods and best practice. <i>Journal of non-Newtonian fluid mechanics</i>.</p> <p>https://doi.org/10.1016/j.jnnfm.2021.104694</p>	2022	Wilms, P., Wieringa, J., Blijdenstein, T., van Malssen, K., Hinrichs, J., Kohlus, R.
<p>A new method for continuous measurement of residence time distribution in spray drying. <i>Drying technology</i>.</p> <p>https://doi.org/10.1080/07373937.2021.1951287</p>	2022	Ruprecht, N. A; Köhler, A., Kohlus, R.
<p>Implementation of an acoustic levitator experimental setup for the investigation into drying kinetics of single droplets. <i>Drying technology</i>.</p> <p>https://doi.org/10.1080/07373937.2021.1872609</p>	2022	Hülsmann, R., Mast, M., Schnorr, C., Esper, G.J., Kohlus, R.
<p>Laboratory-scale superheated steam spray drying of food and dairy products. <i>Drying technology</i>.</p> <p>https://doi.org/10.1080/07373937.2020.1870127</p>	2022	Linke, T., Happe, J., Kohlus, R.
<p>Formulation engineering of food systems for 3D-printing applications: a review. <i>Food research international</i>.</p> <p>https://doi.org/10.1016/j.foodres.2021.110585</p>	2021	Wilms, P., Daffner, K., Kern, C., Gras, S.L., Schutyser, M.A.I., Kohlus, R.
<p>Nozzle zone agglomeration in spray dryers : influence of total solid content on agglomerate Properties. <i>Powder technology</i>.</p> <p>https://doi.org/10.1016/j.powtec.2021.05.094</p>	2021	Fröhlich, J.A., Raiber, T.V., Hinrichs, J., Kohlus, R.
<p>Quantification of shear viscosity and wall slip velocity of highly concentrated suspensions with non-Newtonian matrices in pressure driven flows. <i>Rheologica Acta</i></p> <p>https://doi.org/10.1007/s00397-021-01281-5</p>	2021	Wilms, P., Wieringa, J., Blijdenstein, T., van Malssen, K., Kohlus, R.
<p>Simulation of the oxidation of microencapsulated oil based on oxygen distribution – Model setup and validation. <i>Journal of Food Engineering</i></p> <p>https://doi.org/10.1016/j.jfoodeng.2021.110486</p>	2021	Linke, A., Teichmann, H., Kohlus, R.

A barometric approach for high temperature water desorption isotherm determination. LWT - food science and technology. https://doi.org/10.1016/j.lwt.2020.110750	2021	Linke, T., Kirsch, R., Kohlus, R.
Impact of the oil load on the oxidation of microencapsulated oil powders. Food chemistry. https://doi.org/10.1016/j.foodchem.2020.128153	2021	Linke, A., Weiss, J., Kohlus, R.,
Pilot scale processing and characterisation of calcium-reduced micellar casein concentrate powders. International Dairy Journal https://doi.org/10.1016/j.idairyj.2020.104888	2021	Schäfer, J., Hinrichs, J., Kohlus, R., Huppertz, T., Atamer, Z.
Factors determining the surface oil concentration of encapsulated lipid particles - impact of the spray drying conditions, Drying Technology https://doi.org/10.1080/07373937.2019.1648287	2021	Linke, A., Linke, T., Hinrichs, J., Kohlus, R.
Using an acoustic levitator to investigate the drying kinetics and solids forming process of individual droplets during spray drying. Progress in agricultural engineering sciences https://doi.org/10.1556/446.2020.00011	2020	Huelsmann, R., Esper, G. J., Kohlus R.
Factors determining the surface oil concentration of encapsulated lipid particles: impact of the emulsion oil droplet size. European food research and technology https://doi.org/10.1007/s00217-020-03545-5	2020	Linke, A., Weiss, J., Kohlus, R.
Nozzle zone agglomeration in spray dryers: effect of powder addition on particle coalescence. Powder technology. https://doi.org/10.1016/j.powtec.2020.07.009	2020	Fröhlich, J., Ruprecht, N. A., Hinrichs, J., Kohlus, R.
Wall slip of highly concentrated non-Brownian suspensions in pressure driven flows: a geometrical dependency put into a non-Newtonian perspective. Journal of non-Newtonian fluid mechanics. https://doi.org/10.1016/j.jnnfm.2020.104336	2020	Wilms, P., Wieringa, J., Blijdenstein, T., van Malssen, K., Hinrichs, J., Kohlus, R.,

Contribution of the internal and external oxygen to the oxidation of microencapsulated fish oil. European Journal of Lipid Science and Technology. https://doi.org/10.1002/ejlt.201900381	2020	Linke, A., Linke, T., Kohlus, R.
Impact of the powder particle size on the oxidative stability of microencapsulated oil. Powder Technology https://doi.org/10.1016/j.powtec.2020.01.077	2020	Linke, A., Hinrichs, J. & Kohlus, R.
Oxidation rate of the non-encapsulated- and encapsulated oil and their contribution to the overall oxidation of microencapsulated fish oil particles. Food Research International https://doi.org/10.1016/j.foodres.2019.108705	2020	Linke, A., Weiss, J., Kohlus, R.
Impact of oil droplet size on the oxidative stability of microencapsulated oil. Journal of Microencapsulation https://doi.org/10.1080/02652048.2020.1713243	2020	Linke, A., Hinrichs, J., Kohlus, R.
Biofilm and dairy fouling detection in flexible tubing using low-field NMR. European Food Research and Technology https://doi.org/10.1007/s00217-019-03371-4	2019	Fysun, O., Anzmann, T., Gschwind, P., Rauschnabel, J., Kohlus, R., Langowski, H.-C.
Experimental investigation and simulation of rehydration dynamics of biopolymer powders. Powder Technology https://doi.org/10.1016/j.powtec.2019.07.022	2019	Wangler, J., Teichmann, H., Konstanz, E., Kohlus, R.
Detection of P. polymyxa biofilm, dairy biofouling and CIP-cleaning agents using low-field NMR. European Food Research and Technology https://doi.org/10.1007/s00217-019-03288-y	2019	Fysun, O., Anzmann, T., Kleesattel, A., Gschwind, P., Rauschnabel, J., Kohlus, R., Langowski, H.-C.
Influence of spray drying on the stability of food-grade solid lipid nanoparticles. Food Research International https://doi.org/10.1016/j.foodres.2018.10.056	2019	Salminen, H., Ankenbrand, J., Zeeb, B., Badolato, G, Bönisch, Schäfer, C., Kohlus, R., Weiss, J.

Calcium reduced skim milk retentates obtained by means of microfiltration. Journal of Food Engineering https://doi.org/10.1016/j.jfoodeng.2018.11.016	2019	Schäfer, J., Mesch, I., Atamer, Z., Nöbel, S., Kohlus, R., Hinrichs, J.
Formation and characterization of spray dried coated and uncoated liposomes with encapsulated black carrot extract. Journal of Food engineering https://doi.org/10.1016/j.jfoodeng.2018.10.025	2019	Guldiken, B., Linke, A., Capanoglu, E., Boyacioglu, D., Kohlus, R., Weiss, J., Gibis, M.
ACHEMA 2018 – Drying Technologies. Chemie-Ingenieur-Technik https://doi.org/10.1002/cite.201800161	2018	Balke, T., Fröhlich, J., Gschwind, P., Kohlus, R.
Development and validation of methods to characterize rehydration behavior of food hydrocolloids. Food Hydrocolloids https://doi.org/10.1016/j.foodhyd.2018.04.018	2018	Wangler, J., Kohlus, R.
Modeling Drying Time of Dynamic Freeze Drying. Chemie-Ingenieur-Technik https://doi.org/10.1002/cite.201700164	2018	Pliske, R., Müller, U., Kohlus, R.
The sol–gel transition temperature of skim milk concentrated by microfiltration as affected by pH and protein content. International Journal of Dairy Technology https://doi.org/10.1111/1471-0307.12488	2018	Schäfer, J., Läufler, I., Schmidt, C., Atamer, Z., Nöbel, S., Sonne, A., Kohlus, R., Hinrichs, J.
Concentration of skim milk by means of dynamic filtration using overlapping rotating ceramic membrane disks. International Dairy Journal https://doi.org/10.1016/j.idairyj.2017.10.004	2018	Schäfer, J., Bast, R., Atamer, Z., Nöbel, S., Kohlus, R., Hinrichs, J.
Statistical modelling of coating layer thickness distributions: Influence of overspray on coating quality, Powder Technology https://doi.org/10.1016/j.powtec.2017.11.031	2018	Van Kampen, A., Kohlus, R.

Dynamics of Capillary Wetting of Biopolymer Powders. Chemical Engineering and Technology https://doi.org/10.1002/ceat.201600607	2017	Wangler, J., Kohlus, R.
Modification of extruded chicken collagen films by addition of co-gelling protein and sodium chloride. Journal of Food Engineering https://doi.org/10.1016/j.jfoodeng.2017.03.017	2017	Oechsle, A.M., Bugbee, T.J., Gibis, M., Kohlus, R., Weiss, J.
Inactivation kinetics of invertase in honey and honey–glucose syrup formulations: effects of temperature and water activity. Journal of the Science of Food and Agriculture https://doi.org/10.1002/jsfa.7846	2017	Sramek, M., Woerz, B., Horn, H., Weiss, J., Kohlus, R.
Advanced characterization of encapsulated lipid powders regarding microstructure by time domain-nuclear magnetic resonance. Journal of Microencapsulation https://doi.org/10.1080/02652048.2017.1300198	2017	Linke, A., Anzmann, T., Weiss, J., Kohlus, R.
Meat batter production in an extended vane pump–grinder injecting curing salt solutions to reduce energy requirements: variation of curing salt amount injected with the solution. Journal of the Science of Food and Agriculture. https://doi.org/10.1002/jsfa.7684	2017	Irmscher, S.B., Terjung, E.-M., Gibis, M., Herrmann, K., Kohlus, R., Weiss, J.
Feasibility and energetic evaluation of air stripping for bioethanol production. Bioresource Technology https://doi.org/10.1016/j.biortech.2017.02.001	2017	Schläfle, S., Senn, T., Gschwind, P., Kohlus, R.
Systematic process optimisation of fluid bed coating. Powder Technology https://doi.org/10.1016/j.powtec.2016.10.007	2017	van Kampen, A., Kohlus, R.
Process Characterization of Dynamic Freeze-Drying in a Solids Mixer Prozesscharakterisierung der dynamischen Gefriertrocknung in einem Feststoffmischer. Chemie-Ingenieur-Technik https://doi.org/10.1002/cite.201500149	2016	Pliske, R., Haase, M., Müller, U., Kohlus, R.

Substitution of ice by a curing salt solution during meat batter production using the vane pump-grinder technology. LWT https://doi.org/10.1016/j.lwt.2015.12.034	2016	Irmscher, S.B., Terjung, E.-M., Gibis, M., Herrmann, K., Kohlus, R., Weiss, J.
Extension of the Vane Pump-Grinder Technology to Manufacture Finely Dispersed Meat Batters. Journal of Food Science https://doi.org/10.1111/1750-3841.13206	2016	Irmscher, S.B., Gibis, M., Herrmann, K., Oechsle, A.M., Kohlus, R., Weiss, J.
Modulation of extruded collagen films by the addition of co-gelling proteins. Journal of Food Engineering https://doi.org/10.1016/j.jfoodeng.2015.10.004	2016	Oechsle, A.M., Häupler, M., Weigel, F., Gibis, M., Kohlus, R., Weiss, J.
Microstructure and physical-chemical properties of chicken collagen. Food Structure https://doi.org/10.1016/j.foostr.2016.02.001	2016	Oechsle, A.M., Akgün, D., Krause, F., Maier, C., Gibis, M., Kohlus, R., Weiss, J.
Preparation of High-Grade Powders from Honey–Glucose Syrup Formulations by Vacuum Foam-Drying Method. Journal of Food Processing and Preservation https://doi.org/10.1111/jfpp.12660	2016	Sramek, M., Woerz, B., Horn, H., Weiss, J., Kohlus, R.
Development of a novel homogenizer using the vane pump-grinder technology for the production of meat batter. Journal of Food Engineering https://doi.org/10.1016/j.jfoodeng.2015.08.022	2016	Irmscher, S., Gibis, M., Hermann, K., Kohlus, R., Weiss, J.
Assessment of coating quality by use of dissolution kinetics. Powder Technology https://doi.org/10.1016/j.powtec.2015.08.024	2015	van Kampen, A., Hitzmann, B., Kohlus, R.
Oil-Fat-Mixtures with low solid fat concentration: Influence of fat concentration an cooling conditions. Journal of the American Oil Chemists' Society https://doi.org/10.1007/s11746-015-2683-7	2015	Irmscher, S., Gibis, M., Hermann, K., Kohlus, R., Weiss, J.

Preparation of High-Grade Powders from Tomato Paste Using a Vacuum Foam Drying Method. <i>Journal of Food Science</i> https://doi.org/10.1111/1750-3841.12965	2015	Sramek, M., Schweiggert, R.M., Van Kampen, A., Carle, R., Kohlus, R.
Modulation of collagen by addition of Hofmeister salts. <i>International Journal of Biological Macromolecules</i> https://doi.org/10.1016/j.ijbiomac.2015.05.023	2015	Oechsle, A., Landenberger, M., Gibis, M., Imscher, S., Kohlus, R., Weiss, J.
Determination of process-structure relationship in the manufacturing of meat batter using vane pump-grinder systems. <i>Food and Bioprocess Technology</i> https://doi.org/10.1007/s11947-015-1514-z	2015	Imscher, S., Rühl, S., Hermann, K., Gibis, M., Kohlus, R., Weiss, J.
Investigation to Increase the Drying Rate of the Freeze-Drying Untersuchungen zur Steigerung der Trocknungsgeschwindigkeit der Gefriertrocknung. <i>Chemie Ingenieur Technik</i> https://doi.org/10.1002/cite.201400062	2015	Pliske, R., Müller, U., Kohlus, R.
Modulation of the rheological properties and microstructure of collagen by addition of co-gelling proteins. <i>Food Hydrocolloids</i> https://doi.org/10.1016/j.foodhyd.2015.03.013	2015	Oechsle, A.M., Häupler, M., Gibis, M., Kohlus, R., Weiss, J.
Optimal design of experiments and measurements of the water sorption process of wheat grains using a modified Peleg model. <i>Journal of Food Engineering</i> https://doi.org/10.1016/j.jfoodeng.2015.06.025	2015	Paquet-Durand, O., Zettel, V., Kohlus, R., Hitzmann, B.
Characterization of cell wall polysaccharides of purple pitaya (<i>Hylocereus</i> sp.) pericarp. <i>Food Hydrocolloids</i> https://doi.org/10.1016/j.foodhyd.2013.07.010	2014	Montoya-Arroyo, A., Schweiggert, R.M., Pineda-Castro, M.-L., Sramek, M., Kohlus, R., Carle, R., Esquivel, P.
Collagen entanglement influenced by the addition of acids. <i>European Polymer Journal</i> https://doi.org/10.1016/j.eurpolymj.2014.06.015	2014	Oechsle, A., Wittmann, X., Gibis, M., Kohlus, R., Weiss, J.

<p>Enhancement in yeast separation and recycling in continuous bio-ethanol fermentation process in Blenke cascade. Journal of Chemical Technology and Biotechnology</p> <p>https://doi.org/10.1002/jctb.4045</p>	2013	Ntihuga, J.N., Senn, T., Gschwind, P., Kohlus, R
<p>Influence of filling conditions on product quality and machine parameters in fermented coarse meat emulsions produced by high shear grinding and vacuum filling. Journal of Food Engineering</p> <p>https://doi.org/10.1016/j.jfoodeng.2013.03.015</p>	2013	Irmscher, S., Böhje, Z., Hermann, K., Gibis, M., Kohlus, R., Weiss, J.
<p>Presence of electrostatically adsorbed polysaccharides improves spray drying of liposomes, Journal of Food Science</p> <p>https://doi.org/10.1111/1750-3841.12023</p>	2013	Karadag, A., Özçelik, B., Sramek, M., Gibis, M., Kohlus, R., Weiss, J.
<p>Impact of carboxymethyl cellulose (CMC) and microcrystalline cellulose (MCC) on functional characteristics of emulsified sausages. Meat Science</p> <p>https://doi.org/10.1016/j.meatsci.2012.08.025</p>	2013	Schuh, V., Allard, K., Herrmann, K., Gibis, M., Kohlus, R., Weiss, J.
<p>Estimating energy- and eco-balances for continuous bio-ethanol production using a blenke cascade system. Energies</p> <p>https://doi.org/10.3390/en6042065</p>	2013	Ntihuga, J.N., Senn, T., Gschwind, P., Kohlus, R.
<p>An evaluation of different bioreactor configurations for continuous bio-ethanol production. Applied Energy</p> <p>https://doi.org/10.1016/j.apenergy.2013.03.017</p>	2013	Ntihuga, J.N., Senn, T., Gschwind, P., Kohlus, R.
<p>Efficiency of Blenke cascade system for continuous bio-ethanol fermentation. Bioresource Technology.</p> <p>https://doi.org/10.1016/j.biortech.2012.07.032</p>	2012	Ntihuga, J.N., Senn, T., Gschwind, P., Kohlus, R.
<p>Herstellungskosten von Rohwürsten durch neue Technologien deutlich reduzierbar: Einergieeesparungspotenzial bei der Rohwurstherstellung mit dem Füllwolf durch Temperaturerhöhung des Rohmaterials. Fleischwirtschaft</p>	2011	Irmscher, S.B., Gibis, M., Herrmann, K., Kohlus, R., Weiss, J.