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<b>Research Interest</b>	Computational Fluid Dynamics Simulation of Turbomachinery including Pumps, Fans, Compressors and Turbines. Industrial problem solving, in particular simulation of fluid flow problems. Modelling and experimental investigations of crystallisation as applied to pharmaceutical manufacturing.
<b>Publications</b>	<p><b>1.</b> Steendam, R.R.E., Keshavarz, <b>De Souza, B.</b>, and Frawley, P.J. Thermodynamic properties of paracetamol impurities 4-nitrophenol and 4'-chloroacetanilide and the impact of such impurities on the crystallisation of paracetamol from solution. <i>Journal of Chemical Thermodynamics</i>, <b>2019</b>, 133, 85-92.</p> <p><b>2.</b> <b>De Souza, B.</b>, Keshavarz, L., Steendam, R.R.E., Dennehy, O.C., Lynch, D., Collins, S., Moynihan, H.A., Maguire, A.R. and Frawley, P.J. Solubility Measurement and Thermodynamic Modeling of N-(4-Methylphenyl-Z-3-chloro-2-(phenylthio)propenamide in 12 Pure Solvents at Temperatures Ranging from 278.15 to 318.15 K. <i>J. Chem. Eng. Data</i>, <b>2018</b>, 63, 1419–1428.</p> <p><b>3.</b> Steendam, R.R.E., Keshavarz, L., Bliilevens, M.A.R., <b>De Souza, B.</b>, Croker, D.M. and Frawley, P.J. Effects of Scale-Up on the Mechanism and Kinetics of Crystal Nucleation. <i>Cryst. Growth Des.</i>, <b>2018</b>, 18, 5547–5555.</p> <p><b>4.</b> Tyrrell, R., <b>De Souza, B.</b>, and Frawley, P.J. Particle Breakage: Limiting Conditions for Crystal–Crystallizer Collisions. <i>Cryst. Growth Des.</i>, <b>2018</b>, 18, 617–622.</p> <p><b>5.</b> <b>De Souza, B.</b>, Keshavarz, L., Cogoni, G., Frawley, P.J. The Pressurized-Synthetic methodology for Solubility Determination at Elevated Temperatures, with application to Paracetamol in Pure Solvents, <i>Journal of Chemical and Engineering Data</i>, <b>2017</b>, 62, 1689-1700.</p> <p><b>6.</b> <b>De Souza, B.</b>, Cogoni, G., Tyrrell, R., Frawley, P.J. Evidence of Crystal Nuclei Breeding in Laboratory Scale Seeded Batch Isothermal Crystallization Experiments, <i>Crystal Growth &amp; Design</i>, <b>2016</b>, 16, 3443-3453.</p> <p><b>7.</b> Cogoni, G., <b>De Souza, B.</b>, Croker, D.M., Frawley, P.J. Solubility of (S)-3-(Aminomethyl)-5-Methylhexanoic Acid in Pure and Binary Solvent Mixtures, <i>Journal of Chemical and Engineering Data</i>, <b>2016</b>, 61, 587-593.</p> <p><b>8.</b> Cogoni, G., <b>De Souza, B.</b>, Frawley, P.J. Particle Size Distribution and Yield Control in Continuous Plug Flow Crystallizers with Recycle, <i>Chemical Engineering Science</i>, <b>2015</b>, 138, 592-599.</p> <p><b>9.</b> <b>De Souza, B.</b>, Niven, A., and McEvoy, R. A Numerical Investigation of the Constant-Velocity Volute Design Approach as Applied to the Single Blade Impeller Pump, <i>Journal of Fluids Engineering</i>, <b>2010</b>, 132, 1-7.</p> <p><b>10.</b> <b>De Souza, B.</b>, Niven, A.J., Daly, J., Single-blade impeller development using the design of experiments method in combination with numerical simulation, <i>Journal of Process Mechanical Engineering, Part E</i>, <b>2008</b>, 222, 135-142.</p>