Crystallisation Science in the UK in 2025

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Problem Statement:

The future of industrial crystallisation in the UK presents both challenges and opportunities necessitating a strategic approach to workforce development, academic research, and engagement with funding bodies. Crystallisation, isolation, and drying processes remain fundamental to the production of pharmaceuticals and agrochemicals, highlighting the need for a workforce equipped with specialised skills in these areas. However, the current state of education and training for these processes at the MSc and PhD levels is insufficient to meet this demand.

Key Issues:

1. **Education and Training**: There is a gap in the teaching of crystallisation, isolation, and drying techniques at higher education institutions in the UK, both at undergraduate and postgraduate levels. As digital approaches evolve rapidly, a new skill set is required, yet core experimental skills remain crucial. Effectively addressing future industrial challenges will continue to require research and teaching that integrates both digital and experimental approaches.
2. **Workforce Development**: There is a decreasing number of individuals leaving UK academia with the combination of digital and experimental skills to innovate and optimize crystallisation, isolation, and drying processes. Tailored training programs reflecting current industry needs are essential for nurturing both new graduates and the existing workforce. Such programs could be implemented at either the MSc or PhD level to promote continuous learning and development.
3. **Influence on Academia and Funding Bodies**: Addressing these educational challenges requires strategic collaboration with UK academia and funding bodies to prioritise research and teaching on industrial crystallisation, isolation, and drying. Encouraging investments in research programs, continuing to collaborate between industry and academia, technological advancements in these interrelated processes can be accelerated.

A coordinated effort to reform teaching, enhance industry-academia partnerships, and secure appropriate funding for research in this area is essential. By continuing to build on the world-leading crystallisation research already happening here the UK can secure its industrial competitiveness and maintain leadership in this vital sector.