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Development of scalable plasma polymerisation processes

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Plasma technology has been used to produce cell culture plastics since the 1960s, but more recently, functionalised surfaces have been developed that provide specific functional groups for immobilisation, or for capturing biomolecules. While these surfaces can be made simply and easily in the lab, producing them at a commercial scale presents a number of challenges.
We present the development and characterisation of a large-area plasma polymerisation pilot reactor system capable of higher throughput than typical lab-scale reactor systems and describe some of the challenges in scaling up plasma systems of this type. The system is compared with a standard lab-scale system using plasma mass spectrometry, ion flux measurements and characterisation of the products be XPS and ToF-SIMS.

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