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Powering green chemistry with microspheres and microcapsules

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In green chemistry processes, there is a need for administering actives in well-defined forms as well as using processes and materials in a recoverable and sustainable manner. For these needs, it is mandatory to discuss shape, size and form of dosage, carriers and recovery methods. Microspheres and microcapsules manufactured with the BRACE Microsphere processes offer the unique possibility to combine encapsulation with low energy production process as well as recovering of carriers with resource saving means. The monomodal size and extremely tight size distribution of the particles produced with such processes, allow the precise dosage or the handling of catalysts in a most advantageous manner. Particles produced with the patented BRACE-microsphere processes can be used for producing catalysts and catalyst carriers in a size range from about 50 micrometers up to 8 mm, or the encapsulation of an extremely wide range of materials for release on definable triggers such as mechanical force, temperature, pH, solubility, and many others. The processes can be used to reform materials from sub-zero to 1500°C, while most materials can be easily processed at room temperature to form perfectly round spheres. Such spheres show extremely well definable release properties and can be tailored to almost any application. Applications so far realized range from catalysts and catalyst carriers easily recoverable and reusable,

over bioreactors, cell encapsulation for biochemical processes, agricultural applications such as reducing the pesticide and fertilizer needs, to energy processing for sustainable construction materials, recovering oil and gas, solar cells, energy storage and many more applications. In the field of alternative fuel production or the thermal conversion of biomass, there are several applications already that make use of those properties. As the scalability of the processes is easy, straight forward and unlimited, also large and very large scale productions can easily be covered, at both, a low energy and resource use that scales less than the production output.

Biography

Thorsten Brandau completed his PhD at Goethe University. He is president at BRACE GmbH, Germany.

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