

muCaps Technology eProfile

Executive Summary

CLASS: Controlled release encapsulation materials and process technology.

STATUS: Pioneer technology platform; samples in testing for potential applications.

MARKETS: Food, chemical, biocide, pesticide, pharmaceutical and cosmetic.

INTELLECTUAL PROPERTY: Patent on file, know how, scientific expertise.

TECHNOLOGY LEADER: Dr Christophe Barbé

COMMERCIALISATION: Sponsored R&D agreement for field of use applications under option/license agreement.

Technology Background

As part of a major nanotechnology research program, ANSTO has developed material and process technology for encapsulating and releasing a wide range of active molecules from ceramic particles.

A key feature of the technology is the production of particles with a defined microstructure which can be designed to have specific dose/release rates to suit commercial requirements.

Intrinsic advantages of this technology include:

- **Versatility:** the ability to produce particles made of different materials (SiO₂, TiO₂, Hybrids), with different sizes (from 10 nm to 100 μm), different release rates (from hours to months), and with independent control of the release rate and particle size.
- **Generic approach:** Elimination of the need for matrix reformulation when using different molecules.

Markets

Potential applications include:

- **Drug delivery:** biocompatible matrix coupled with targeted delivery.
- **Active "paints":** Pigment size ceramic particles releasing pesticides, biocides and antifouling agents. Their small size allows easy deposition as a paint or film by spraying or brush-painting, or penetration into the internal structure of porous material.
- **Cosmetics:** unique combination of controlled release with matrix properties (UV-protection or abrasion).
- **Food:** protection of the encapsulated molecule inside innocuous micro-cap until release .

Technical Status

Samples have been produced and are being tested for medical applications. This technology is classified as "Pioneer" since additional development is required for:

- Applications development for specific markets.
- Process development of an economic manufacturing scale process.

Venture Partner

ANSTO is seeking R&D partners for sponsored R&D agreements for field of use applications under option/license agreements.

ANSTO's contributions include the proprietary technology platform, technical expertise, patents and know how, project team and the resources of a major research facility.

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