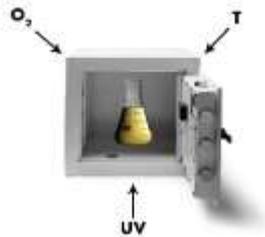


Protective cover made of yeast

Safe and natural encapsulation of valuable materials

Invention

Yeast cells are a by-product of beer and bioethanol production and are therefore readily available. The cell walls of "used" yeast cells are still fully intact. This makes them suitable as encapsulation



Protective cover for valuable materials

material – as a kind of "protective cover" for a variety of sensitive substances such as essential oils. Moistening the yeast cell walls makes them permeable: The molecules of an enclosed valuable material diffuse into the interior of the yeast cell and accumulate there. The cell walls are then sealed in a subsequent drying process – the valuable material is now encapsulated inside the cell. This protects it well from environmental influences such as oxygen, UV radiation or high temperatures up to 200°C. The yeast cells are particularly suitable for storing, transporting and releasing valuable materials sensitive to temperature and oxidation. The release of the valuable material from the microcapsules can be controlled by the targeted addition of water. This process for the continuous production of microcapsules for the encapsulation of valuable materials is based on the high-pressure spray process CPF (Concentrated Powder Form), which allows very gentle processing at temperatures below 40°C.

Commercial Opportunities

The microcapsules are suitable for a variety of applications, including in the food sector or the pharmaceutical industry, as the active ingredients are released through targeted contact with water in humans or animals. It is also possible to process the yeast cells filled with the active substance in the form of chewing gum. The mechanical and thermal stress during chewing breaks open the yeast cells and releases the active ingredient. In agriculture, biocides could be activated by contact with rainwater.

Current Status

Technology Readiness Level TRL 3.

An invention of the Ruhr-Universität Bochum.

Competitive Advantages

- Natural protective cover
- Renewable resources
- High storage capacity
- Protection against environmental influences
- Cheap starting material
- Good storability and transportability
- Targeted recycling

Technology Readiness Level

123456789

Experimental proof of concept

Industries

- Food industry
- Chemical industry
- Pharmaceutical industry
- Agriculture industry

Ref. No.

5502

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