



## **CONTINUOUS PRODUCTION OF LIPOSOMES USING SUPERCRITICAL CARBON DIOXIDE**

ID# 2022010

### **HIGHLIGHTS**

- A continuous process for the production of liposomes without the use of organic solvents.
- Reduces the cost and environmental impact of liposome production.

### **OPPORTUNITY**

A team of researchers from the University of Alberta has developed a new process for the continuous production of liposomes without any need for organic solvents, based on the use of supercritical carbon dioxide. This process can be used to entrap both hydrophilic and lipophilic compounds while providing effective control of the particle size. With no organic solvents used in the process, additional processing steps are removed, reducing the cost and environmental impact of the production of liposomes, as well as eliminating residues in the final product. The use of supercritical carbon dioxide can also be readily implemented at industrial scale.

This continuous liposome production process results in the formation of liposomes with sizes smaller than 200 nm with narrow particle size distribution in a single-step process. It only requires the application of low pressure (100 bar) and temperature (40 °C), allowing it to be incorporated into existing industrial processes.

### **COMPETITIVE ADVANTAGE**

- A continuous, single-step process to produce liposomes without the use of organic solvents.
- Supercritical carbon dioxide is a non-flammable, non-toxic, non-corrosive and inexpensive solvent, and its low critical temperature prevents the degradation of bioactive compounds.
- Offers strong control of the particle size of the manufactured liposomes, with high reproducibility and a narrow particle size distribution.
- The use of supercritical carbon dioxide is already established at industrial scale in other fields.

### **STATUS**

- Patent Pending

### **INVENTORS**

- [Feral Temelli](#), David Villanueva Bermejo

### **MORE INFORMATION**

Robert Carruthers  
Associate Director, Licensing  
Technology Transfer Services, University of Alberta  
[rwcaruthers@ualberta.ca](mailto:rwcaruthers@ualberta.ca)  
825.601.5559

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