

NOVEL & SAFE ALLOGRAFTS & XENOGRAPTS TISSUES FOR ORTHOPAEDIC & DENTAL RECONSTRUCTION SURGERIES PROCESSED USING SUPERCRITICAL CO₂ TECHNOLOGY

OssiTiss Pvt. Ltd. (OssiTiss) can source, import and sell novel decellularized & sterilized allograft & xenograft-derived Collagen membranes & Bone Graft Substitutes (BGSs) processed using scCO₂ technology, with minimal/no damage to the native extracellular matrix (ECM) composition & growth factors, resulting in biocompatible & improved tissue integration upon implantation for dental, orthopedic, & wound care applications. OssiTiss has multiple GMP-ISO 13485-Certified CMOs that manufacture CE/FDA-approved allografts & xenografts tissues using scCO₂ technology.

THE CHALLENGE

Limited & timely availability of autografts & other Bone Graft Substitutes (BGSs) with minimal osteo-inductivity and biocompatibility has led OssiTiss to develop scCO₂ technology for processing allografts & xenografts tissues to meet the unmet clinical need. The current processing methods of these tissues involve various chemicals, such as acids & bases, hypotonic & hypertonic solutions, detergents, alcohol & other solvents, which denature the native ECM & activate host immune responses, resulting in tissue rejection.¹⁻²

THE TECHNOLOGY, ADVANTAGES & APPLICATION OF scCO₂

CO₂ at given temperature & pressure reaches supercritical phase with penetrative properties of gas & washing properties of a liquid (Figure 1). This enables deep tissue penetration & decellularization of tissue material without damaging ECM components & heat-sensitive native growth factors. OssiTiss, together with multiple CMOs, currently manufactures CE/FDA-approved porcine/bovine-derived pericardium membranes, allografts, & Xenografts bone void fillers for dental & orthopedic applications (Figure 2).

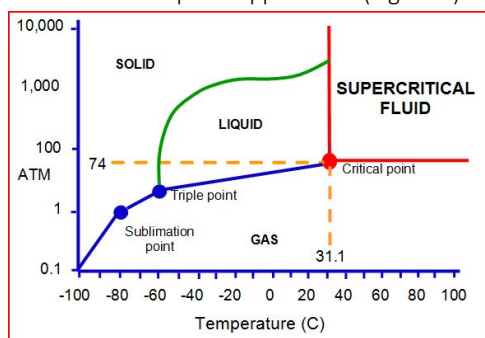


Figure 1. The supercritical property of CO₂

Furthermore, the scCO₂ equipment is supplemented with co-solvent pumps, which can be used to impregnate with any APIs or antibiotics of your interest. In addition, the decellularized tissues can be sterilized using scCO₂ using a combination of solvents at low temperatures without compromising native ECM components & growth factors⁴.

STAGE OF DEVELOPMENT & COMMERCIALIZATION

OssiTiss is actively looking for international partners to import, sell, and further develop novel products to various geographical markets to meet unmet clinical needs.

- Allograft or xenograft-derived tissue products
- Develop new products using scCO₂ technology.
- Sterilization of biological/tissue products using scCO₂
- Impregnation or Extraction of active molecules

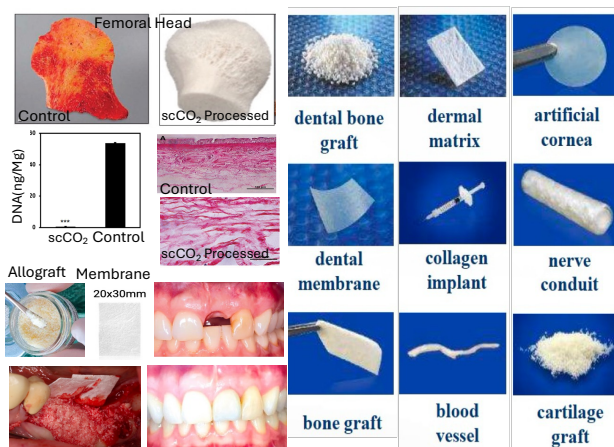


Figure 2. Representative tissue images of allograft tissues decellularized using scCO₂ Technology. The Cells and DNA are removed without compromising ECM structure of the tissue. The potential application of scCO₂ Technology to develop various allograft tissues is indicated on the right side of the image⁵⁻⁸

AVAILABLE COMMERCIAL PRODUCTS FROM OSSITISS

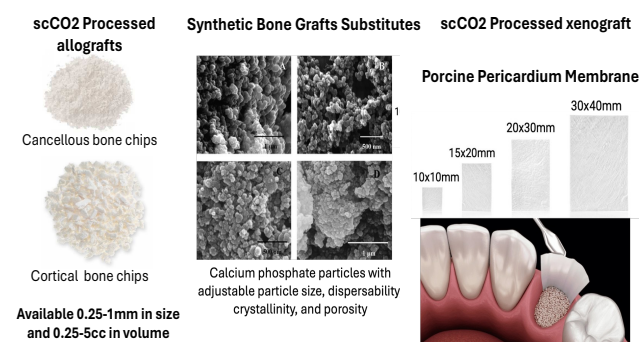


Figure 3. Product Combination of synthetic, allograft, and xenograft-based tissues for dental and orthopedic applications.

PRODUCT PIPELINE

- Combination of BCP/HA/TCP⁷⁻⁸
- BCP/Allograft DBM
- Porcine pericardium collagen membrane in different sizes
- Allografts in sizes (0.25mm-1mm) & volumes (0.25cc- 5cc) with pericardium membrane (10X10 mm - 30X40 mm)

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