

2 dimensional freeze-casting

Freeze-casting has gained huge interest in material sciences due to its effortless and eco-friendly technique to manufacture porous materials. It consists of freezing a solution toward one direction by applying a thermal gradient. The ice is forming in a lamellar shape and pushes or engulfs solute particles depending on the ice front velocity. When the solution is completely frozen, it is freeze-dried and then sintered. Freeze-casting's biggest goal is to understand the interaction between ice and its environment, it is why 2D freeze-casting is investigated. Magnetic fields are added to modify particle engulfment and pushing.