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**Subheading:** Porous PCL system obtained by leaching melt mixed PCL/PEG/NaCl composites: oil uptake performance and bioremediation efficiency

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**KEYWORDS:** Melt Polymer Processing; Oil/water separation; Biodegradable polymeric sponge; *Alcanivorax*; *Nocardia*.

## ABSTRACT

A novel floatable and biodegradable sponge for the selective absorption of oil from water and potentially useful as cell carrier for bioremediation treatments was prepared in polycaprolactone (PCL). The eco-friendly process for fabricating the PCL sponge does not involve either synthetic routes or organic solvents, thus minimizing environmental hazard. In particular, the 3D porous materials have been prepared by mixing in the melt the polymer matrix with two water-soluble

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