

Fabrication of a soft and porous polypyrrole–styrene ethylene butylene styrene hybrid scaffold
by in situ vapor phase polymerization

Fernandez Frances Danielle, Yim, Jin-Heong[†]
Kongju National University
(jhyim@kongju.ac.kr[†])

Toxic gases have gained significant attention nowadays because of their adverse effects to human health and the environment. In this study, the group used in situ vapor phase polymerization (VPP) of pyrrole (Py) on an oxidant-impregnated styrene ethylene butylene styrene (SEBS) matrix comprising a three-dimensional sugar particle assembly to produce a soft and porous SEBS-polypyrrole (PPy) hybrid scaffold. The performance of the hybrid scaffold as a chemical sensor was evaluated, and the effect of varying the temperature of the system, ammonia concentration, and scaffold concentration in terms of resistance change were assessed. The characterizations of the hybrid scaffold were completed by FE-SEM, FT-IR, EDS, and XPS. The soft and porous SEBS-PPy hybrid scaffold produced by VPP might be practically useful, implying that this preliminary investigation needs to be extended to study its application to other toxic and non-toxic gases.