



Contribution ID: 23

Type: Poster

## Effect of ZnO and TiO<sub>2</sub> on Properties of Polystyrene/Nitrile Rubber Electrospun Fiber Mats

This research is aimed to study the effect of zinc oxide (ZnO) and titanium dioxide (TiO<sub>2</sub>) on mechanical and antibacterial properties of PS/NBR electrospun fibers. 15 wt% of polystyrene (PS) blended with nitrile rubber (NBR) at 50:50 w/w is dissolved in tetrahydrofuran prepared PS and NBR solution. ZnO and TiO<sub>2</sub> are added into PS/NBR solution at 1.0, 2.0 and 3.0 wt%. The addition of 2.0 wt% of ZnO into PS/NBR electrospun fibers maximized Young's modulus and tensile strength. For the effect of TiO<sub>2</sub>, increasing content of TiO<sub>2</sub> up to 1.0 wt% increased Young's modulus and tensile strength of PS/NBR electrospun fibers while addition of TiO<sub>2</sub> beyond 1.0 wt% decreased the Young's modulus and tensile strength. The percentage strain at break is also decreased as the content of ZnO and TiO<sub>2</sub> increased. Moreover the anti-bacterial properties, it found that the addition of 2.0 wt% ZnO the fibers inhibited the growth of E. coli and S. aureus.

**Primary author:** Dr THREEPOPATKUL, Poosub (Department of Materials Science and Engineering, Faculty of Engineering and Industrial Technology, Silpakorn University, Nakhon Pathom 7300, Thailand)

**Presenter:** Dr THREEPOPATKUL, Poosub (Department of Materials Science and Engineering, Faculty of Engineering and Industrial Technology, Silpakorn University, Nakhon Pathom 7300, Thailand)

**Track Classification:** Nanomaterials & nanostructures