

### Shrinkage behavior

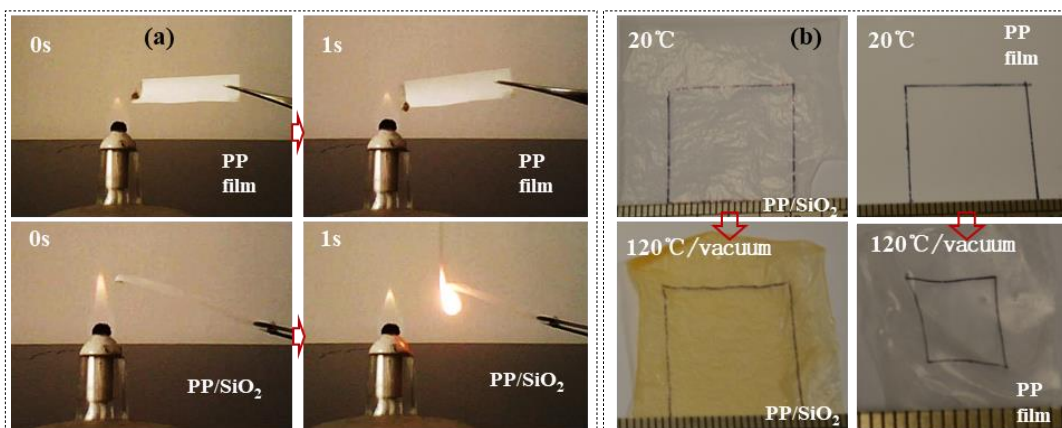
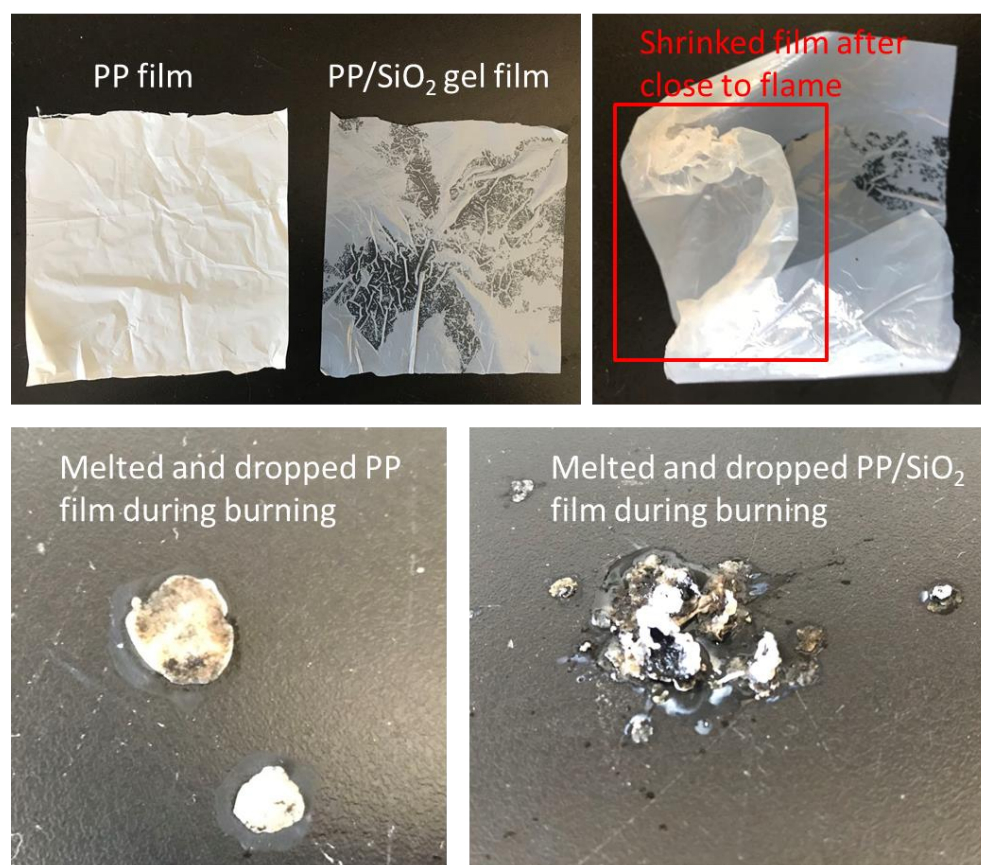


Figure 2 Shrinkage behaviors of PP and PP/SiO<sub>2</sub> electrospun films, (a) close-flame behavior, (b) shrinkage of film at high temperature under vacuum condition



Scheme-1 Morphologies of PP electrospun film and PP/SiO<sub>2</sub> gel coated film, and their edge shrinkage when close to flame, and melted and dropped residue during combustion on desk

During combustion, the coated gel of PP film appear more white smoke than pure PP film. Meanwhile, the burning film shows some melted drops on desk. PP film shows relatively even and waxy drops from the cured unburned residue, however, PP/SiO<sub>2</sub> gel shows white powders on waxy residue, which is the SiO<sub>2</sub> gel residue.