

Pretreatment of PDMS-coated PET release film for the recycling of PET

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Polyethylene terephthalate (PET) release film is a functional film that acts as a material barrier to protect the surface of commercial products such as window, semiconductor wafer, mobile phone screen and label tape. Usually, PET release film is composed of multiple layers to enhance the physical properties and grant various functionality. Especially, PET film coated with polydimethylsiloxane (PDMS) is widely used among PET release film. However, recycling of PDMS-coated PET film is difficult without removing PDMS layer from the film. In this work, we propose pretreatment process to remove PDMS layer from the PET film by swelling PDMS layer and physically detaching it. PET film was immersed in n-hexane at 40 °C. Then, glass beads of 1mm diameter were added. The mixture was agitated for 2 hours. After the agitation, swollen PDMS waste and glass beads were filtered from the mixture. To confirm the amount of PDMS left on the surface of PET film, glycolysis of PET film was carried out. As the result, the amount of PDMS on the surface of PET film was decreased by 63%, suggesting that PDMS layer could be removed from PET film.