Revolutionary Recycled & Reusable Biodegradable Adhesive Tack (3R-BAT)

Chow, Hin Fung

Biodegradable plastic is now one of the main substitutes for petroleum based plastics and is used widely for all kind of applications. As starch is often used as one of the ingredients of bioplastics, the cost of starch is driven up. At the same time, starch is often being thrown away in the form of food waste; up to 50 % of the 4 billion tons of food being produced worldwide every year goes to waste and often ended up in landfills. In view of these two unrelated and yet environmental problems, a revolutionary new biodegradable plastic adhesive material has been developed which is made from recycled starch that has strong adhesive power and can be reused many times. The main components of the Revolutionary Recycled & Reusable Biodegradable Adhesive Tack or 3R-BAT are starch, glycerol, pine oil & castor oil. 3R-BAT passed the residue, strength, humidity, temperature and adhesiveness tests. The project further investigates the possibly of making 3R-BAT by using recycled starch but keeping the same apparent ratio of amylase as previously. The final product can be moulded into various shapes and sizes and be used as an adhesive for holding paper, cardboard or light objects up on walls or most surfaces and yet leaves no damage or tear on the original object or surface being hung up. Strength tests were carried and were found that 3R-BAT is 30% stronger in holding up weights when compared to popular glue or adhesive tacks. 3R-BAT is not just a useful material for many daily applications; it has also solved many of our major environmental problems.

Awards Won:

Fourth Award of $500