

# Design and Fabrication of Recycling Non Bio Degradable Materials Into Products

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**Abstract:** *This project focuses on recycling non-biodegradable materials to help the environment from global waste and pollution. It investigates methods to transform non-biodegradable materials into new products, aiming to reduce environmental damage caused by solid waste. It will select specific solvents that match the type of plastic to make recycling more effective. The combination of mechanical and chemical operation is used for achieving the objective of the project. The shredder machine is used for mechanical operation and the acetone solvent is used for chemical operation. The process starts with collecting plastic materials and sorting them manually based on their properties. The sorted materials undergo various stages. The waste materials are cleaned with water and crushed using a shredder machine. Chemical treatment (acetone) is used to dissolve the crushed pellets. The acetone takes 2-3 hours to react with the plastic. After this period, the waste materials transition into a semi-solid stage. In this stage, some adhesive materials are mixed with the dissolved plastic to improve the bonding strength and surface finishing of the final product. The semi-solid plastic is then fed into a die for the development of new products such as table bushes and door handles. The solvent added to the plastic is evaporated after 30 minutes of drying in sunlight. After the evaporation of acetone from the die, the final product is obtained. The final specimens undergo mechanical testing such as hardness test, tensile test and compression test. By utilizing a shredder machine and acetone, this project demonstrates how non-biodegradable materials can be turned into useful products, helping to reduce waste and protect the environment.*

**Keywords:** non-biodegradable materials