




Final Year Project Showcase Batch-2019 Year 2023

| Department: Polymer & Petrochemical Engineering Programme: Polymer & Petrochemical Engineering | |
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| 1 | Project Idea <p>Plastic waste is an inevitable global problem, and plastic waste seems unavoidable. Under natural conditions, plastics are almost indestructible, but large amounts of them are discarded all over the world. The environment cannot cope with waste fast enough to prevent harm to living organisms. The project idea is based on using the wastes plastic material to manufacturing plastic bricks used for construction purpose.</p> |
| 2 | Process <p>The objective of this study to investigate the effect of additives/ reinforcing material on Mechanical and thermal recycle scrap thermoplastic for manufacturing of plastic bricks.</p> |
| 3 | Outcome <p>Construction blocks made of reinforced plastic composite are used in a variety of architectural and civil engineering applications such as precast bricks, partitions, roofing tiles, channel liners and paving. These applications are important to support the disposal of non-degradable plastic waste generated worldwide.</p> |
| 4 | Evidence (Theoretical Basis) <p>This project comprises the development of reinforced plastic composite construction blocks. Plastic brick, also known as eco-bricks or bottle bricks, are a relatively new invention that has gained popularity in recent years as a solution to plastic waste. The idea behind plastic bricks is to use discarded plastic bottles or other containers to create building blocks by recycling plastic waste which is harmful for the environment. The concept of using plastic waste for building materials has been around for several decades, but the production of plastic bricks began to gain momentum in the early 2000s. In this project the raw materials i.e. HDPE and PP are selected on the basis of their mechanical properties then the raw materials are processed by using an extruder and molded into the shape of the sample by using compression molding technology. The samples will be tested to examine the properties of blend of different weight proportion in order to analyze that which proportion has the best properties comparatively. Addition of additive will be done in selected blend proportion to enhance the mechanical properties. At last the most appropriate composition will be selected. The molding of brick will be done by using this composition through injection molding facility which will be provided by Bigger Bricks. At last the mechanical testing of the brick will be done in the civil department of NED University. The results of this brick made by HDPE and PP blend will be compared with the brick made by Acrylonitrile butadiene styrene (ABS). The ABS brick which is already developed by Bigger Bricks will serve as a reference point in order to compare the properties.</p> |
| 5 | Competitive Advantage or Unique Selling Proposition (Cost Reduction, Process improvement, Attainment of any SDG (Sustainable Development Goal), increase of market share or capturing new market or having superior performance over a competitor. In summary, any striking aspect of the project that compels the industry to invest in FYP or purchase it. Some detailed description is required in terms of how, why when what. You can select one or more from the following dropdown and delete the rest of them). Please keep relevant options, delete the rest of them, and correct the sequence |
| a | Attainment of any SDG (e.g. How it is achieved and why it is necessary for the region) <p>The project achieved the following sustainable development goals (SDGs): SDG#08: Decent Work and Economic Growth</p> |



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| | SDG#09: Industry Innovation and Infrastructure SDG#12: Responsible Consumption and Production | |
| | Any Environmental Aspect (e.g. carbon reduction, energy-efficient, etc.) | |
| b | The project incorporates following environmental aspects: 1. Reduction in plastic waste | |
| | Cost Reduction of Existing Product | |
| c | The project is focus on manufacturing of construction bricks from recycle material. The basic advantage of the project is the utilization of plastic waste and converting it into useful product. As the recycle material is comparatively cheaper than virgin material that makes it more cost effective. | |
| | Target Market (Industries, Groups, Individuals, Families, Students, etc) | |
| 6 | As the study deals with the manufacturing of construction bridgetes, so the construction industry will be the targeted area for this project. | |
| 7 | Team Members (Names along with email address) | Shazma Akram (shazma.irfana@gmail.com) Aiman Siddiqui (siddiquiaiman351@gmail.com) Fabiha Aqil (fabihakhan94@gmail.com) Muhammad Abdullah Badshah (abdullahfarr@gmail.com) |
| 8 | Supervisor Name (along with email address) | Prof. Dr. Saud Hashmi (Supervisor) Email: saduhashmi@neduet.edu.pk Engr. Raza Muhammad Khan (Co-Supervisor) rmkhan@neduet.edu.pk |
| 10 | Pictures (If any) |  Bricks made from Recycle Material. |