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**Project Title**

Surface Modification of Recycled Polyester Fibres for Technical Textile Applications.

**Objective**

The recycled polyester fiber is surface modified in order to enhance the porosity of fibers to develop technical textile products like wet wipes, filters, sound and thermal insulation panels.

**Method**

Recycling plastic material is the main concern now a days. PET bottles are converted into polyester fiber and used in textile materials. Because of its plane fiber structure this textile does not hold water in it.

Polyester fibers are treated with NaOH because of this treatment texture of fiber is change and we can use it as an insulator.

Because of treating with NaOH smooth polyester fiber changes its structure. Porosity of fiber is increased because of changed structure of fiber. Smooth fiber structure is converted into rough surface fiber.

This fiber structure can hold water contain in it because of its structure so we can use it as a wet wipes and filter. Because of its rough structure It can absorb sound waves so this can be used as a sound insulator also.

**Outcome**

- 1) We can easily recycle plastic waste by this method.
- 2) Because of structural change of fiber this can be used as a sound and thermal insulators.
- 3) Water holding capacity of fiber is increased so it can be used for making wet wipes.

**Conclusion**

- 1) This process of converting structure of fiber is very simple.
- 2) Recycling of polyester fiber and plastic waste can be easily done.
- 3) Life of insulators and wipes is more than regular insulator and wipes.

## Implementation

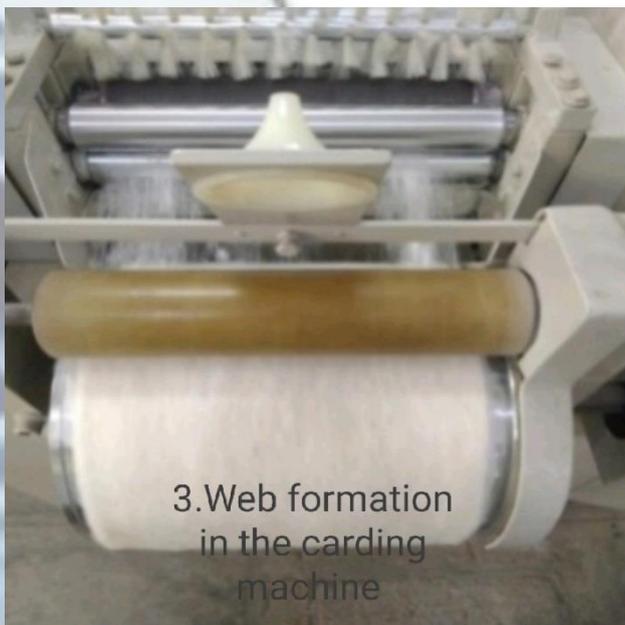
- 1) Can be used in sound recording studios.
- 2) Thermal insulators in Heat exchangers.
- 3) Wet wipes can be used in domestic use.



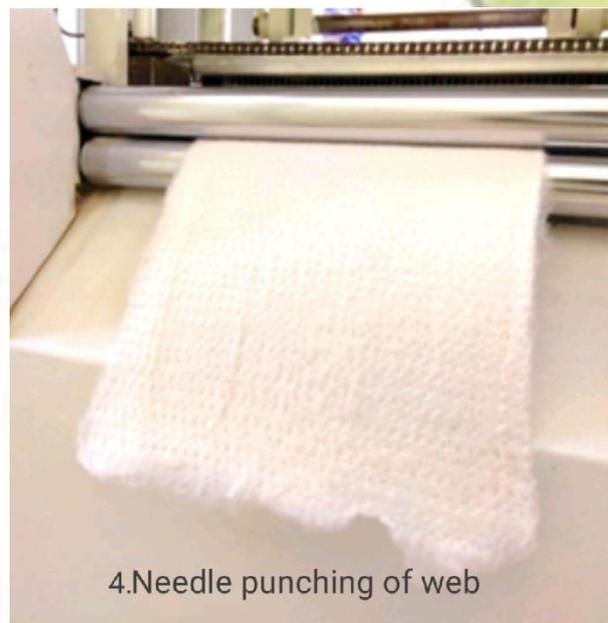
Step 1 - Recycled PET Fibers



Step 2 – Surface treatment of fibers



Step 3 – Web Formation in the carding Machine



Step 4 – Needle punching of web