

Nanofibers From Plastic Bottles

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ABSTRACT

The present invention relates to nanofibers derived from waste plastic bottles and method of manufacture of such nanofibers from waste plastic materials. Further, the present invention also relates to the use of such fibers in making various products such as protective facemasks, nanofilters for air purification, smoke filters or cigarette filters etc. have also been described.

KEY APPLICATION AREAS

1. Personal protective equipment (PPE).
2. Air purification and air filtration.
3. Respiratory protection (reusable face masks).
4. Smoke and cigarette filtration.
5. Plastic waste recycling and circular economy.
6. Nanofiber-based filtration materials.

POTENTIAL USE

1. Semi-reusable protective face masks with near N95-level particulate filtration and improved breathability.
2. Air purification nano-filters for capturing fine particulate matter (0.1–2.0 μm).
3. Smoke and cigarette filters for filtering smoke, tar, and fine pollutants.
4. Reusable cotton-based PPE with washable nanofiber membranes for reduced environmental impact.
5. Sustainable conversion of waste PET bottles into high-value nanofiber filtration products, supporting circular economy initiatives.