

Scientist from IIT Kanpur develops washable adhesive and related products

Scientists have developed a sticky mat which takes away dust from a contacting surface, ensuring a clean, hygienic, healthy, and refreshing atmosphere at our home, offices, hospitals, and laboratories as also smooth functioning of many expensive equipments. The mat is a low-cost one and remains washable and usable over many cycles.

Prof Animangsu Ghatak from the Department of Chemical Engineering IIT Kanpur, who developed the mat with the support of Department of Science & Technology, Government of India under Make in India initiative, took inspiration from adhesive pad present at the feet of wall climbing animals, like house lizards.

The adhesive associated makes use of nanoscopic pyramidal bumps on its surface to attract dust particles towards it, thereby cleaning the sole of our shoes when we step on it. When the adhesive gets completely covered with particulate matter, it is washed in a way that we wash our clothes. At this, the surface gets back its ability to stick and remains usable through hundreds of such cycles.

The scientists have used a bottom-up approach of preparation of nano - to micro-patterned surface on elastomer over a large area, control of geometry of surface patterns by simple methods, washability, and reusability of the adhesive over many cycles for the development of this mat. It has been validated, and an Indian patent application has been filed for the sticky mat. It is simple to prepare, easy to wash, environmentally benign, cost-effective, and can be a replacement for materials imported for the same purpose. The closest substitute is the 3M sticky pad that is not washable or reusable.

This mat can be used in ICU of Hospitals, clean rooms, facilities housing sophisticated equipment as a component of air filters. The technology is important wherever cleanliness and hygiene is desired. The product is in 7 – 8 level of technology readiness level and is yet to be commercialised. A pilot plant is being built to make the material in a scale larger.

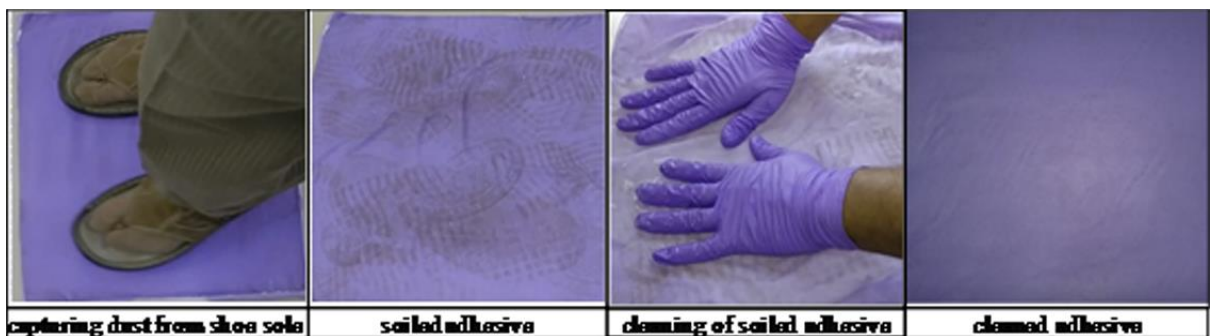


Figure 1. Example of washable adhesive



Figure 2. Washable adhesive used for catching dust and even mosquitoes inside home.

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