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3D foldable N95 face mask

Technology Summary

A 3D foldable N95 face mask without the expiration valve that combines comfort, leak-free fit, 95% filtration efficiency, and breathability. The mask has been developed by the Pune Masks Action Group led by Venture Center.

Background

According to the Center for Disease Control and Prevention, wearing a face mask in public places has been shown to reduce the spread of COVID-19, specially in pre-symptomatic or asymptomatic cases. N95 masks offer a higher degree of protection than a surgical mask or cloth mask, but a government notification has cautioned against the use of valved respirator N95 masks because the "one-way" valve does not prevent the virus from escaping out of the mask. Thus, there is an increased demand for non valved N95 masks.

Technology description

The MH12 N95 mask is a 6-layer mask comprising meltblown and spunbond polypropylene fabric that uses both mechanical filtering, in which particles are caught in a matrix of microscopic fibers, and electrostatic filtering, in which particles are attracted to surfaces that carry a static charge, to achieve a filtration efficiency of 95% for particles over 0.3 microns.

Market potential

The global N95 mask market size is expected to reach USD 21.57 billion by 2027, at a CAGR of 45.1% from 2020 to 2027

<https://www.prnewswire.com/news-releases/n95-mask-market-size-worth-21-57-billion-by-2027--cagr-45-1-grand-view-research-inc-301169376.html>

Value Proposition

- Ultrasonically welded suture sealing for better leak proofness.
- No exhalation filter to reduce spread of potentially contaminated air
- Welded elastic straps to hold the mask firmly on the head instead of ear loops
- High quality nose clip for better leak proofness at the nose
- Tested for conformity with NIOSH N95 Criteria for filter efficiency (Equivalent to FFP2, EN 149-2001 + A1: 2009) by ITS Lab

Applications

Reliable protection against aerosols and particles such as COVID19 virus.

Technology status

Venture Center is the licensor of both the knowhow and MH12 trademark for the N95 masks. Licensing agreement signed with Licensee Ultra Autosonic India for commercialization of licensed technology.



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