Empa
Materials Science and Technology

Facemasks have become the “face” of air-borne pathogen pandemics over recent years. Unfortunately, they pose a significant obstacle in pediatrics and to communication with hearing-impaired patients. Currently however, common filter membranes are virtually impossible to be manufactured as transparent and efficient filters simultaneously.

Electrospun Membranes: Transparent Filters

Concept: Transparent facemask enabling the interpretation of facial features without loss of protective function.

Electrospun Membranes: Transparent Filters

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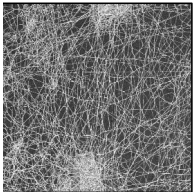

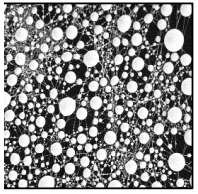

- Projekt «**Hello Mask**» in collaboration with **HMCare** and **Elmarco**
  - > Patented design and principle (EP3885476A1)
  - > Tested and published (doi:10.1021/acsanm.1c02843)
    «Polyamide Nanofiber-Based Air Filters for Transparent Face Masks»
- Polyamide (Nylon) ES Membrane on PLA mesh
  - > Continuous production and processing
- Thin ES membrane for unrivalled transparency (≈70% UV-vis)
- Good filtration efficiency (≈40-90% FE @ 0.1-1 µm)
- Very low pressure drop (6.5 Pa/cm² @ 27 cm/s)
- Stability to air flows of at least 120-150 cm/s (sneezing)