

Face mask production complexities

Higher than usual demand for a niche synthetic fibre is contributing to a global shortfall in protective masks and gowns for healthcare workers

▶ SPUNBOND MELTBLOWN SPUNBOND (SMS) MATERIAL

Tri-laminated, non-woven fabric made from **polypropylene** fibres

▶ MELTBLOWN MANUFACTURING

1 **Polypropylene:** Thermoplastic chips added

Plastic melted, extruded, filtered and metered to produce slender threadlike fibres

▶ PERSONAL PROTECTIVE EQUIPMENT (PPE)

SMS is used for **face masks** and other items like gowns, coveralls, lab coats, caps and boot covers



High velocity hot air: Strands (one thousandth of millimetre thick) sprayed onto **rotating drum** where they form tangled mesh. Electrostatic charge added to attract aerosols

Highly specialised machinery: Can take many months to assemble

▶ LAMINATE
Meltblown polypropylene: Excellent, but weak, fluid and particulate barrier

Final product can be treated to repel alcohol, oil and blood. Offers bacterial filtration efficiency of **95%-99%**

2 **Hot air pipe**

3 **Spooling reel**

Motor

Rotating drum: Carries **meltblown polypropylene** onto **spooling reel** for collection

Spunbond polypropylene: Thermally-bonded web-like structure adds high tensile strength

China: Number one manufacturer of meltblown material, producing around **25,000 tonnes** per year