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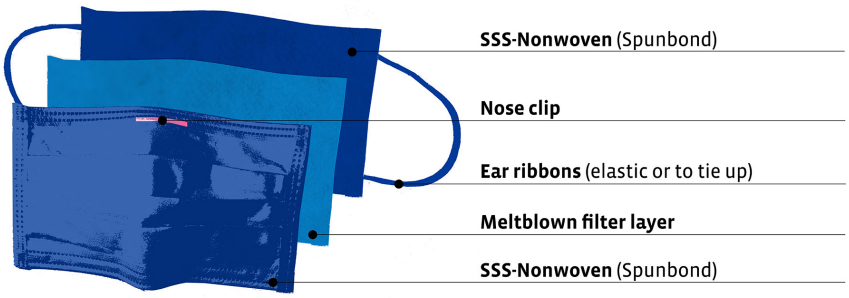
The Extrusioneers

FACTSHEET

3 Reasons Why Nonwoven Materials for Respiratory Masks Cannot be Produced on Composite Lines.

The material for medical protective clothing, such as gowns or protective suits, is produced on so-called composite nonwoven lines. The required SMS nonwovens are thus produced as composite material in only one production step. Respiratory masks are also made from SMS structures. In contrast to medical protective clothing, however, the middle filter layers made of meltblown as well as the surrounding layers of spunbonded nonwovens must be manufactured in individual production steps and finished afterwards.



Exemplary structure of a simple face mask

These Facts Make Composite Production Impossible:

1. The production parameters do not match

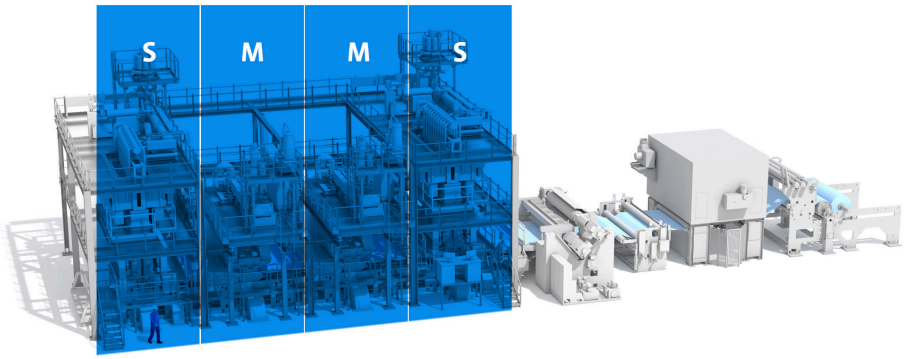
The basis weights and properties of a nonwoven fabric are largely determined during production by the combination of material throughput and conveyor belt speed. In the composite production process, only one combination can be set which influences both the spunbond layers and the meltblown layers. However, the properties required for spunbond and meltblown nonwovens used in face masks, cannot be achieved with the same plant parameters: The throughput required for the production of spunbonded layers is significantly higher than the throughput required for the production of meltblown layers.

2. The air permeability of the meltblown is reduced

The different nonwoven layers are produced directly on top of each other in a composite process. As this compacts the filter layer, its air permeability is reduced. A further reduction of about 18 percent is caused by calendering in this process. However, the air permeability is crucial for filters, especially when used in respiratory masks, because comfortable breathing through the mask must be ensured.

3. After-treatment is not possible

Meltblown filter material used in face masks must be electrostatically charged. Otherwise the smallest particles such as viruses cannot be reliably filtered. Although this after-treatment is basically possible in the composite process, it is much more complex on the hardware side than when the filter layer is produced separately in the stand-alone meltblown process.



Reicofil composite nonwoven line in the SMMS configuration (S=Spunbond, M=Meltblown)