



➤ APPLICATION BULLETIN

MagIQ™ Nonwoven Electret Additives for Protective Face Masks

Electret additives are used in the manufacture of nonwovens for protective face masks to impart long-lasting filtration properties.

Protective face masks, including the N95 type and surgical masks, are commonly composed of three layers of nonwoven fabric with different properties and functions.

STRUCTURE	MATERIAL	TECHNIQUE	FUNCTION
S (Spunbond) outer layer	PP	Nonwoven Spunbond	Waterproof, prevents droplets from sticking
M (Meltblown) middle layer	PP	Nonwoven Meltblown	Filtration of microbes, particles and droplets in the air
S (Spunbond) outer layer	PP	Nonwoven Spunbond	Water absorption, absorbs water vapor from breath





FILTRATION

Several factors can influence the filtration capability of a face mask, but it is the middle layer's primary function to filter microbes, particles and droplets in the air thereby protecting both the wearers and the people around them.

In order to ensure the middle layer in a face mask can effectively block up to 95% of airborne particles, the material requires the addition of a specific additive prior to the meltblown stage followed by a process known as electret charging.

ELECTRET CHARGING

Electret charging works by improving the crystallinity and mechanical deformation of a material, to prevent electret charging from drifting. By introducing additives with charge storage properties, "charge traps" are created which capture the electret charge applied to the meltblown nonwoven material.

Charging only works when the correct additive solution is utilized, and together with the fiber denier, gram weight and number of layers, it ensures the middle layer of protective masks can effectively trap small airborne particles.



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