

## تأثير إختلاف وزن المتر المربع وأسلوب التنفيذ علي خواص الأداء الوظيفي للأقنعة الطبية الجراحية غير المنسوجة ذات الأساليب التنفيذية المختلفة

### The effect of difference weight per square meter and executive Method on the functional performance properties of non- woven surgical medical masks with different executive Methods

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#### Abstract :

The manufacture of medical products based on the use of disposable non-woven fabrics depends on the understanding of the special requirements for the final uses of this type of fabric. The surgical physician inside the surgical room, especially the surgical masks, are important axes for their important and effective functions in order to prevent the possibility of transmission, especially viral diseases, in addition to the ease of use.

The purpose of this study is to conduct experimental study to determine the effect of the difference weight per square meter for non-woven fabrics on the functional performance properties of non-woven medical surgical masks with different executive methods and the impact of the executive method (manufacturing technology) on the functional performance properties of non-woven medical surgical masks. The importance of this study is to study the effect of this on the quality of the final product and its suitability for its functional performance and to identify the important properties required for medical products in order to protect the medical personnel within the operating room and Suitable masks have been produced for this purpose, Then, some laboratory tests were made on the produced masks to determine their different properties and the relationship of these properties with the study variables this was done in the textile laboratory of the Institute for Measurement and Calibration and Egyptian organization for Standardization and Quality (EOS), then results were analyzed statistically using the analysis of variance and quality evaluation. The result of the research are achieved that :

The study reached the following results :

- There is a clear effect of weight per square meter on the properties of functional performance such as: (air permeability - water vapor permeability) for the production and manufacture of non-woven surgical medical masks where there is an inverse relationship between the weight per square meter of fabrics and the amount of air permeability and there is of an inverse relationship between the weight of the square meter of fabrics And the amount of its permeability to water vapor.
- There is a clear effect of the executive methods (manufacturing techniques, such as: SB, SMS and MB) on the properties of functional performance such as: (weight per square meter - air permeability - water vapor permeability) to produce and manufacture non-woven surgical masks, air permeability rate in the SB layer is higher than the SMS and MB layer, and the water vapor permeability rate in the SMS and MB layer is higher than the SB layer.
- the Sample No. (1), manufactured by the (SB+SMS) method, which is composed of two layers, is the ideal sample for the functional performance properties and its first order and that the sample No. (8), manufactured by SB + MB + SB, is composed of three layers, is the lowest for the functional performance properties and its final order.

**Key words :** ( Functional performance - Nonwoven fabrics - Medical Clothes - Surgical masks ).