

# Analysis of the functional and sensual properties on the multi layer hydrophobic porous coated fabric

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## 1. INTRODUCTION

Recently, hydrophobic polyester fabric be wildly know from material part of functional cloth according to grow the leisure industry and the outdoor market. The general functions of hydrophobic porous coated fabric are water repellency, breathable, wind proof, light weight, low absorption and quick dry etc. We appraisal and analysis of function and sensual properties on the multi layer hydrophobic porous coated polyester fabrics. We look out the interrelationship that samples coated each 2-layer and 3-layer using polyester fabric of 5 kinds. The developed product will be use to work wear, water sport swear, outdoor and military uniform.

## 2. EXPERIMENTAL

We prepare 5 kinds of polyester fabric, processing for a hydrophobic treatment with 0.5mm knife changed under 2-layer and 3-layer type. We analyzed functional and sensual properties with 10 specimens of under the 2 type conditions and inquire into relationship of the samples. We will knows through this experiment that to effects according to increase coating layer. Table 1. is the detail of the specimen which is used. All samples are Polyester 100% with various weave. The point of these specimens is thickness of coating layer. Table 2. is 6 kinds of the test method to know functional and sensual properties.

**Table 1.** The detail of specimens

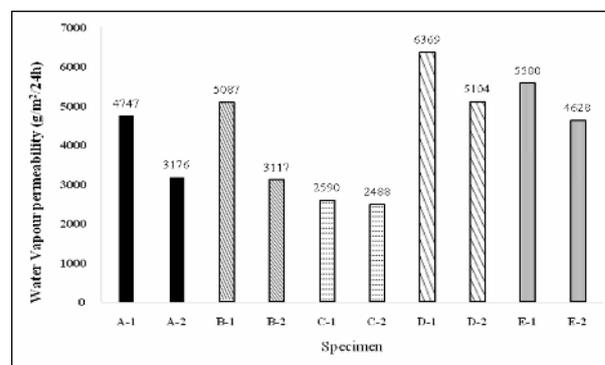
No.	Content	Weave	Yarn Count	Layer
A-1	Polyester 100%	Ottoman	50D X 50D	2
A-2	Polyester 100%	Ottoman	50D X 50D	3
B-1	Polyester 100%	Plain	50D X 50D	2
B-2	Polyester 100%	Plain	50D X 50D	3
C-1	Polyester 100%	Ripstop	30D X 30D	2
C-2	Polyester 100%	Ripstop	30D X 30D	3
D-1	Polyester 100%	Dobby	50D X 50D	2
D-2	Polyester 100%	Dobby	50D X 50D	3
E-1	Polyester 100%	Dobby	30D X 30D	2
E-1	Polyester 100%	Dobby	30D X 30D	3

Figure 1. is show to water vapour permeability. this test is used reagent of Calcium Chloride(CaCl<sub>2</sub>) from condition of 40 °C temperature and 90% relative humidity in the thermo-hygrostat. Value of the 2layer coated fabric is higher than the 3layer coated fabric values.

**Table 2.** The test method of specimens

Test	Standard
Water Vapour Permeability	JIS L 1099
Water Repellency(spay test)	AATCC 22
Air Permeability	ASTM D 737
Dimensional stability to washing	ISO 6330
Water resistance	ISO 811
Hand Value	KES-FB

Figure 2. is show to initial value of water repellency use water of 27 °C temperature and 250ml volume for 25 second. All samples have 100 spray grade without coating layer.



**Figure 1.** Water vapour permeability

Figure 3. is show to air permeability of samples by pressure of 125Pa. air transmission of 2-layer fabric is better than 3-layer fabric. Figure 4. is show to dimensional stability after 3 washing by 40 °C temperature. Minus mean to shrinkage after washing. Warp direction shrinkage ratio of fabric have lower value than weft direction of fabric without relationship layers.

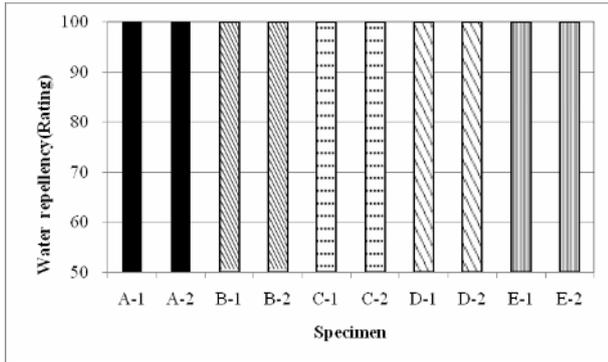


Figure 2. Water repellency (spray test)

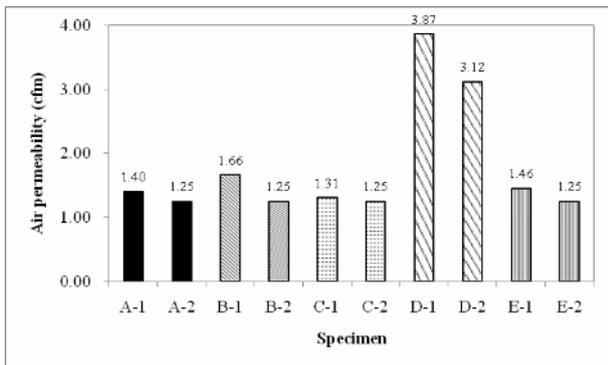


Figure 3. Air permeability

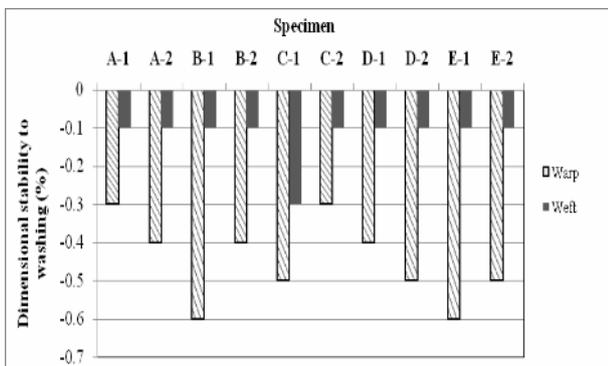


Figure 4. Dimensional stability to washing

### 3. RESULT AND DISCUSSION

From the experimental results, coating layer is influence water vapour permeability and air permeability. The 2-layer coated fabric is better the 3-layer coated fabric from functional properties.

### 4. REFERENCES

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- [2] A. K. Oh, S. J. Kim ; J. Korean Fiber Society, pp. 425-433, Vol.31, No. 6, 1994

### 5. ACKNOWLEDGEMENT

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