

The development of new fashion product used for PVA

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1. Introduction

Fashion industry the form will be able to be sufficient the craving of the consumer, color feeling and feeling change leads and raises the beauty of the product and a functional value and to be bitter economic value of the goods the height knowledge is the industry where the element which is intensive is big with zoom. The fashion goods about reduction full dress are casual, the sportswear demand augmentation and market size magnification are forecast, confront development of the new fashion product are demanded hereupon with life style and consuming symbolic change. In order produces the new fashion product from if uses knitting machine which is special is not the general knitting machine, has the limitation of side position organization. When PVA water soluble strong points develops the maximum saving knit organization but, even as the general knitting machine of existing is various and will can make the new fashion product. Therefore PVA where the water solubility is high applies the knitting machine of existing from the research which sees and development sufficiency of the new fashion product in order to be satisfactory from environmental hits and applies and is various and under developing boil the fashion product of new organization.

2. Experimental

2.1 Materials

The grey yarn used 3 types (Hollow Polyester, Bamboo/Polyester, Acryl/Wool), PVA, and bonding yarn(Nylon).

2.2 Knitting

The knitting used Jacquard machine(28G/28") and knitted plain structure and face pique structure.

2.3 Dyeing

The hollow polyester samples were dyed with the dispersive 3 combination(red, yellow, blue dyes). The conditions for dyeing were as the following : dyeing liquor ratio of 10:1, at 130 °C for 30mins. Dyeing was carried out in a rapid-dyeing machine. The

bamboo/PET samples were dyed with the dispersive 3 combination(red, yellow, blue dyes) and reactivity 3 combination(red, yellow, blue dyes). The conditions for dyeing were as the following : dyeing liquor ratio of 10:1, at 130 °C and 60 °C for 30mins. Dyeing was carried out in a rapid-dyeing machine and an atmospheric dyeing machine. The acryl/wool samples were dyed the cationic 3 combination(red, yellow, blue). The conditions for dyeing were as the following : dyeing liquor ratio 10:1, at 100 °C for 30mins.

2.4 Colorfastness

Washing and heat treatment process after being rough, colorfastness to artificial light ISO 105 B02, colorfastness to domestic and commercial laundering ISO 105 C06-B1S, colorfastness to perspiration ISO 105 E04 where goes round strongly picking and colorfastness to rubbing ISO 105 X12 methods measured the specimen which is dyed.

3. Result and Discussion

3.1 Knitting

The knitting structures were knitted like the picture and was directly under the side in 4 kind forms.

1	H	H	H	H	H	H	H	H	H	H	H	H	H
2	H	H	H	H	H	H	H	H	H	H	H	H	H
3	H	H	H	H	H	H	H	H	H	H	H	H	H
4	-	-	Π	-	-	-	H	H	H	H	H	H	H
5	H	H	H	H	H	H	H	H	H	H	H	H	H
6	H	H	H	H	H	H	H	H	H	H	H	H	H
7	H	H	H	H	H	H	H	H	H	H	H	H	H

Fig.1 Knitting structure 1

(*1,2,6,7 : Grey yarn, *3,5 : Grey yarn + Bonding yarn,
* 4 : PVA, *H :Knit, -:Miss, Π :Tuck)

1	H	H	H	H	H	H	H	H	H	H	H	H
2	H	H	H	H	H	H	H	H	H	H	H	H
3	H	H	H	H	H	H	H	H	H	H	H	H
4	-	-	Π	-	-	-	H	H	H	H	H	H
5	H	H	H	H	H	H	H	H	H	H	H	H
6	H	H	H	H	H	H	H	H	H	H	H	H
7	H	H	H	H	H	H	H	H	H	H	H	H

Fig.2 Knitting structure 2

(*1,3,5,7 : Grey yarn, *2,6 : Grey yarn + Bonding yarn,
* 4 : PVA, *H :Knit, -:Miss, Π :Tuck)

1	H	H	H	H	H	H	H	H	H	H	H	H
2	H	H	H	H	H	-	H	H	H	H	H	H
3	H	H	H	H	H	-	H	H	H	H	H	H
4	-	-	Π	-	-	-	H	H	H	H	H	H
5	H	H	H	H	H	-	H	H	H	H	H	H
6	H	H	H	H	H	-	H	H	H	H	H	H
7	H	H	H	H	H	H	H	H	H	H	H	H

Fig.2 Knitting structure 3

(*1,3,5,7 : Grey yarn, *2,6 : Grey yarn + Bonding yarn,
* 4 : PVA, *H :Knit, -:Miss, Π :Tuck)

1	H	H	H	H	H	H	H	H	H	H	H	H
2	H	H	H	-	H	-	H	H	H	H	H	H
3	H	H	H	-	H	-	H	H	H	H	H	H
4	-	-	Π	-	-	-	H	H	H	H	H	H
5	H	H	H	-	H	-	H	H	H	H	H	H
6	H	H	H	-	H	-	H	H	H	H	H	H
7	H	H	H	H	H	H	H	H	H	H	H	H

Fig.2 Knitting structure 4

(*1,3,5,7 : Grey yarn, *2,6 : Grey yarn + Bonding yarn,
* 4 : PVA, *H :Knit, -:Miss, Π :Tuck)

3.2 Dyeing

In order to measure the dyeing chromatic consistency which is dyed colorimetry (Color i5, GretagMachbeth and U.S.A) used and measured reflexivity from the maximum absorption wavelength. And the dyed samples outer appearance in compliance with Kubelka-Munk consistency (K/S) got tightly.

Table 1. The result of CCM

Sample	L*	a*	b*	K/S
①	80.67	8.59	-1.26	0.706
②	70.31	24.22	-4.15	0.771
③	74.77	28.13	4.85	0.588
④	23.00	1.79	-15.62	16.808

3.4 Colorfastness

Colorfastness the result of test with afterwords is same.

Table 2. Colorfastness to artificial light

Sample	Result
①	5
②	4
③	3-4
④	4

* Atlas Ci4000

Table 3. Colorfastness to rubbing

Sample	Result	
	Dry	Wet
①	4-5	4-5
②	4-5	4-5
③	4-5	4-5
④	4-5	4

Table 4. Colorfastness to domestic and commercial laundering

Sample	Color change	Staining					
		Acetate	Cotton	Nylon	PET	Acylic	Wool
①	5	5	5	5	5	5	5
②	5	5	5	5	5	5	5
③	5	5	5	5	5	5	5
④	4-5	3-4	4-5	3-4	3-4	4-5	4-5

Table 5. Colorfastness to perspiration

Sample	Color change	Staining					
		Acetate	Cotton	Nylon	PET	Acylic	Wool
①	Acid	4-5	5	5	5	5	5
	Alkali	4-5	5	5	5	5	5
②	Acid	4-5	5	5	5	5	5
	Alkali	4-5	5	5	5	5	5
③	Acid	4-5	5	5	5	5	5
	Alkali	4-5	5	5	5	5	5
④	Acid	4-5	4	4-5	3-4	3-4	4-5
	Alkali	4-5	4	4-5	4	4	4-5

4. Reference

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Acknowledgement

This research was supported by the Program for the R&D fund of Gyeonggi Province.