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〈I.S.A. 發表論文要約〉

Studies on Wash and Wear Silk Finishing collaborating Anticrease

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防皺性을 兼한 絹織物 Wash and Wear 加工硏究

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摘 要

1981年에 絹織物 Wash and Wear加工 硏究를 國際絹業協會(I.S.A) 技術分科委員會에서 發表하였든바 意外로 至大한 關心을 보였는데, 今年初 同協會로부터 8個 種類의 絹織物을 送付해와 本硏究의 再確認을 하고싶다 하여 旣往이면 防皺性도向上시키는 實驗을 해야 되겠다고 決定하고 本硏究에 着手하였다. 本硏究는 따라서 1982年 I.S.A會議에서 다시 發表하게 끔 되어 있다.

本硏究로 얻어진 結果는 다음과 같이 要約할 수 있었다.

1. 樹脂加工으로 防皺性이 나쁜 絹織物은 20%程度 向上시킬 수 있었다.
2. 樹脂加工과 Wash and Wear加工을 單一工程으로 해도 Wash and Wear效果가 있었다.
3. 本來 絹織物이 高密度織으로 되었거나 高撚絹織일 때는 防皺性이 本來 좋아서 樹脂加工을 해도 數% 밖에 向上되지 못하였다.
4. 絹織物組織面으로 볼 때 朱子織이나 綾織이 平織보다 좋은 防皺性을 보였다.
5. 本硏究處理는 染色物의 染色堅牢度를 向上시키는 效果도 있었다.

This treatise has been carried out for the silk samples provided by the president of International Silk Association and the author would like to comment his sincere appreciation for such kindfull cooperation of Mr. Weisbrod through this paper.

As all of us know, the author had reported a creative report on wash and wear silk finishing at Lyon Congress in 1981, where he happened to find a exciting interest by the session and to feel whether he can improve the anticrease of silk as well as wash and wear finishing.

When we consider about the anticrease problem of silk textiles, we should pay attention what would be necessary to improve the anticrease of silk. As far as the author knows, the fibre structure, the woven density or woven composition and the yarn twist number per meter(T.P.M) are the most important factors to control the anticrease of any textile fabrics. One thing we should bear in mind is the raw silk fabric shrinks about ten per cent during its refining or deguming process which it increases the woven density and brings about better anticrease after all. Such nature of silk is, however, continued some how even after the sewn form in case of soap washing, so far, the usual silk clothes are washed by dry cleaning method. The author's previous report had solved such problem and the silk clothes may be washed in soap water in case use of his method, that is, the fibre structure fixing method.

Now, we will discuss the studies on the reseach subject. The provided silk samples and their shrin-

Table 1. Various silk samples specification and shrinkage test result

Item	Specification	Woven density	Textile width(cm)		
			before finish	after finish	after wash
No. 1	Crape de Chine, TCL-100% silk, discharged and dyed	90cm~80g/m	93.1	93.1	93.1
No. 2	28418, Honan, 100% Silk Tassah, discharged and dyed	90cm~100g/m	87.5	87.5	87.5
No. 3	28375, Toile, 100% Spun silk, discharged and dyed	90cm~90g/m	98.5	97.5	97.9
No. 4	12143/5, Spun Silk, Satin	90cm~90g/m	96.4	95.6	95.6
No. 5	24059, Shantung, Warp: Spun Silk, yarn dyed, Weft: Duppion Silk, yarn dyed	90cm~180g/m	89.9	88.9	88.9
No. 6	28353, Shantung, 100% Spun Silk, dyed	90cm~150g/m	86.0	85.2	85.2
No. 7	2761-, Regatte, discharged dyed Warp: Spun Silk/high twist raw silk, Waft: Spun Silk	90cm~200g/m	102.7	102.3	102.3
No. 8	28350, Spun Silk, 100%, dyed	90cm~90g/m	92.7	92.7	92.7

king phenormena of each sample are listed in Table 1.

According to Table 1, there is no shrinkage after the finishing which means the samples are fixed through the finishing and such nature is continued during periodical soap washing processes, even though there was some shrinkage upon the anticrease finishing specially for spun silk. That is why, the finishing method may be concluded to be enough for wash and wear finishing method.

Then the author had investigated the textile anticrease following after Monsanto Method and the fabric stiffness by Canti-Lever Method for each sample in order to compare the results between nonfinished fabric and finished one. The listed data in Table 2 are the results of ten times repeat check average. It is known that all textile fibre's deformation by various loading is composed of elastic deformation and plastic deformation include creep extension, and two different deformations influences greatly for the anticrease nature. We are controlling the plasticity of textile fabric by ironing some how, but it is not parmanent method at all. That is why, the meaning of anticrease finishing may be explained how to provide a moderate plasticity nature to silk fabric upon the finishing so as to be a proper composing rate of the both deformations.

In order to control such composing rate, we are working for increase of the fibre woven density or to increase the twist number per meter of weaving yarn in limited woven area. Such method is of course a physical improving method which sometime harms the textile feeling. For the fibre structure, it may be needed to work out by some chemical method to change the nature of it. For instance, some preparing method of crosslinkage between polypeptides are widely used so that it may approach to wool fibre structure.

Standing upon such research principle, the author had used monomethyrol polymerization method to improve the anticrease of the samples, mean time, he had also processed wash and wear finishing together which he had reported in previous paper. This work could be done either two step processes or one step process by modifing the wash and wear finishing.

According to Table 2, the finishing shows very interesting results. Some of silk fabrics, specially spun silk fabric, increased anticrease as much as more than 20% against the original one. Mean while, many light density textiles showed a few per cent increase because they were woven with high twist yarn. In case the original fabric is good condition, the increase of anticrease by the finishing showed only a few per cent increase which were thought to be not necessary for such anticrease finishing from economical aspect. On the other hand, the finishing method is recommended strongly to use for poor anticrease silk fabric regardless the finishing cost. He had also found that the anticrease was better in case the textile compositoin is satin or twill type than plain woven fabric. The wash and wear finishing of this paper had also found that

Table 2. Anticrease and stiffness test results of silk textiles

No	Item	Anticrease (%)						Stiffness (cm)					
		Out S. bent		Back S. bent		Average		Out. S. bent		Back S. bent		Average	
		Warp	Fill	Warp	Fill	Warp	Fill	Warp	Fill	Warp	Fill	Warp	Fill
1	Control	85.3	84.5	81.8	81.0	83.5	82.8	2.34	2.50	2.60	2.66	2.47	2.58
	Finish	87.2	83.7	85.9	84.0	86.5	83.9	2.48	2.89	2.58	2.84	2.53	2.84
	Increase					3.0	1.1					0.06	0.26
2	Control	64.5	61.4	64.0	61.5	64.3	61.5	2.92	4.54	2.88	4.34	2.90	4.44
	Finish	67.1	66.9	68.7	71.7	68.7	69.3	2.96	4.86	2.94	4.80	2.95	4.83
	Increase					4.4	7.8					0.05	0.39
3	Control	80.3	79.5	77.4	80.7	78.9	80.1	2.28	3.36	2.58	3.36	2.43	3.31
	Finish	82.0	79.3	84.4	81.5	83.2	80.4	2.60	3.78	2.44	3.88	2.52	3.83
	Increase					4.3	0.3					0.09	0.52
4	Control	76.7	81.4	79.9	80.0	78.4	80.7	3.28	3.32	3.40	3.56	3.34	3.44
	Finish	84.6	89.4	86.5	84.8	85.6	87.1	2.92	3.68	3.30	3.70	3.11	3.69
	Increase					7.2	6.4					0.23	0.25
5	Control	65.4	53.9	62.1	56.7	63.7	55.3	4.98	4.62	5.00	4.64	4.99	4.63
	Finish	79.2	83.4	77.9	81.3	79.6	82.3	6.62	5.12	6.76	5.64	6.69	5.38
	Increase					15.9	27.0					1.7	0.75
6	Control	79.8	75.8	84.4	88.0	82.1	82.0	4.68	3.06	4.66	2.86	4.67	2.96
	Finish	87.8	85.1	89.0	86.5	89.0	85.8	4.46	3.10	4.64	3.34	4.55	3.22
	Increase					6.9	3.8					0.12	0.27
7	Control	84.0	83.1	85.9	83.5	85.0	83.3	3.82	2.26	4.04	2.76	3.98	2.51
	Finish	86.2	85.2	84.9	86.3	85.6	85.7	3.98	2.56	3.84	2.66	3.91	2.61
	Increase					0.6	2.4					0.02	0.10
8	Control	81.3	77.8	76.1	81.0	78.8	79.4	2.84	2.64	2.86	2.16	2.85	2.65
	Finish	79.8	77.4	79.0	80.5	79.4	79.9	3.32	3.00	3.26	3.04	3.29	3.02
	Increase					0.7	0.5					0.44	0.37

the method helped dye fastness much more than the normal finished one.

In case we work out the anticrease improvement, the process is apt to increase the silk textile stiffness to be harsh, but the result of this paper did not show any significant increase of stiffness by such finishing method according to Table 2.

The results of this work were evaluated as satisfactory and he believes that the work will be able to extend the silk demand through out the world in future because such finishing method will provide much more combinence for wearing and house wives to handle it. One thing it should be beared in mind is that this processing is not for apparent or visual improvement but it is improved for plactical use of them.