

A High-density Knit Wiper Development of Low Lint Type

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1. INTRODUCTION

Woven or non-woven fabrics are mainly used as a wiper material, most of polyester filament or cotton, rayon etc., but recently the use of knit is manufactured using microfiber is being expanded.

South Korea's most wiper is a non-woven material and most materials such as cotton, PVA, Rayon caused a lot of particle are being used[1-2].

In this study, we were investigating a high gauge(42gauge above) knitting terms using the N/P split fiber for the development of an advanced high-density knit wiper can be used in semiconductor and precision electronics industry, etc.

2. EXPERIMENTAL

We used the N/P split fiber of 50denier and 75denier and produced by a high-density knitting machine of 42gauge and 44gauge.

To lower the occurrence of lint, we attached the air-injection devices to the knitting machine. We spilt the N/P conjugate fiber using NaOH and produced the high-density knit wiper using high-density contraction surfactants. Finally, we evaluated the property of the wiper.

3. RESULTS

Loops of 50denier and 75denier split fiber were the optimal length of 95~105mm. In the case air injection system was installed on the needle, installation case was obtained 2-3times good results more than pre-installation case for the lint evaluation.

We obtained optimal split and high-density contraction condition of N/P conjugate fiber and produced a high-density knit wiper of low lint type. The evaluation results are presented by Table 1.

Table 1. Evaluation results of high-density knit wiper

Evaluation indices	unit	results
Lint	>100 μ m	7.33
NVR	grade	A
Absorption velocity	Sec	1.6

4. CONCLUSION

If air injection system was installed on the high-gauge knitting machine, we would obtain good results for lint evaluation. Also, control of loop length and high contraction are important conditions.

5. REFERENCES

- [1] Welcron, *Korea Pat. 10-0378844*(2003).
- [2] Saehan, *Korea Pat. 10-0704382*(2007).
- [3] H.S. Kim; "Wiping Products-still cleaning up", MCTNET, 2003.