

Technical Communication



Nippon Kayaku (Thailand) CO., LTD.
Technical Service Center

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「One bath dyeing of Polyester/Cellulose at 110°C with Kayacelon React」

- As many of you may already know, Kayacelon React Dye is the world's first neutral pH fixing reactive dye developed by Nippon Kayaku.
- Kayacelon React does not require alkali for fixation, allowing it be used in combination with other types of dyes for dyeing blended cellulosic fibers.
- The recommended dyeing method for conventional T/C blends is 130°C, but if combined with a low-temperature dyeing type disperse dye, dyeing can be conducted with a dyeing method introduced below at 110°C with reproducible results.

Disperse Dyestuff		N %o.w.f.					①	②	③	④	⑤
	①	②	③	④	⑤						
KM Yellow AQ-LE	0.135	0.0052	0.012	0.030	0.055	130°C × 20min.					
KM Red AQ-LE	0.005	0.0310	0.020	0.058	0.056						
KM Blue AQ-LE	-	-	0.115	0.072	0.036	110°C × 45min.					
Glauber's salt (g/L)	20	20	20	20	20						

- Above is the result of one-sided dyeing of disperse dye on T/C (50/50). The colors dyed are yellow, red, blue, and mixed colors of grey and brown. The hue and depth are the same at 110°C x 45 min and 130°C x 20 min.

Reactive Dyestuff		N %o.w.f.					①	②	③	④	⑤
	①	②	③	④	⑤						
KYR Yellow CN-EX	0.30	-	-	0.075	0.165	130°C × 20min.					
KYR Red CN-3B	-	0.30	-	0.045	0.048						
KYR Blue CN-MG	-	-	0.30	0.180	0.087	110°C × 45min.					
Glauber's salt (g/L)	20	20	20	20	20						

- On the other hand, above is the result of one-sided dyeing of reactive dyes on T/C (50/50). The hue and depth are the same at 110°C x 45 min and 130°C x 20 min.

Kayalon Microester AQ-LE Colors + Kayacelon React CN Colors:		①	②	③	④	⑤
One-bath Dyeing	130°C × 20min.					
	110°C × 45min					











- Above is the result of one-bath dyeing of disperse dyes and reactive dyes on T/C (50/50). The hue and depth are the same at 110°C x 45 min and 130°C x 20 min. Although the dyeing time differs depending on hue, it is possible to shorten the dyeing time by around 10 to 15 minutes for colors lighter than the recipe shown above.

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Fastness

	Dye	Light	P/Light	Washing		Water		Cl Water		Dye	Light	P/Light	Washing		Water		Cl Water
				Ny	Cotton	Ny	Cotton						Ny	Cotton	Ny	Cotton	
① 0.1 N		4 ↑	4-5	4-5	4-5	4-5	4-5	3-4	① N		4 ↑	4-5	4-5	4-5	4-5	4-5	3-4
② 0.1 N		4 ↑	4	4-5	4-5	4-5	4-5	4	② N		4	4	4-5	4-5	4-5	4-5	4
③ 0.1 N		4	4	4-5	4-5	4-5	4-5	3-4	③ N		4	4	4-5	4-5	4	4-5	3-4
④ 0.1 N		4	4	4-5	4-5	4-5	4-5	3	④ N		4	4	4-5	4-5	4-5	4-5	3
⑤ 0.1 N		4	4	4-5	4-5	4-5	4-5	3-4	⑤ N		4	4	4-5	4-5	4-5	4-5	3

- This is the data of the fastness levels of the individual colors and the mixed colors of Kayacelon React dyes. From the left, it displays light fastness, perspiration light fastness, washing fastness, water fastness, and chlorinated water fastness. Kayacelon React dyes on T/C fabrics can achieve practical levels of required fastness.

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