

Technical Communication

(vol. 06)

「Light Fastness effects of flame retardant agent and ultraviolet absorber on CDP/PET fabrics」

Kayacryl (KAC)

Yellow 3RL-ED

1. 0%o. w. f.



Red GL-ED

1. 0%o. w. f.



Red GRL-ED

1. 0%o. w. f.



Blue BG-ED (N)

1. 0%o. w. f.



Blue GTL-ED (T)

2. 0%o. w. f.



- The data below shows the light fastness levels of Nippon Kayaku's recommended trichromatic colors for CDP: KAC Yellow 3RL-ED, KAC Red GL-ED, and KAC Blue BG-ED(N).
- With the recommended trichromatic colors, a light fastness level of grade 4 can be maintained, as shown in the top row, but when a flame retardant agent is added, the light fastness level is less than grade 4.
- With ultraviolet absorber, the light fastness can be significantly improved even with the addition of flame retardant agent.







Recipe	% o.w.f.		Light Fastness ISO 105-B02 Xenon			
	Grey	Beige	Grade 4	Grade 5	Grade 4	Grade 5
KAC Yellow 3RL-ED	0.052	0.091	4		4	
KAC Red GL-ED	0.041	0.071				
KAC Blue BG-ED(N)	0.063	0.031				
KAC Yellow 3RL-ED	0.052	0.091	4 ↓		4 ↓	
KAC Red GL-ED	0.041	0.071				
KAC Blue BG-ED(N)	0.063	0.031				
Kayastab F02 (Flame retardant) 10% o.w.f.						
KAC Yellow 3RL-ED	0.052	0.091		4-5		4-5
KAC Red GL-ED	0.041	0.071				
KAC Blue BG-ED(N)	0.063	0.031				
Kayastab F02 (Flame retardant) 10% o.w.f.						
Reform UV-326 (UV absorber) 2% o.w.f.						

- Some customers may use different combinations of trichromatic colors. The data below shows the use of KAC Red GRL-ED instead of KAC Red GL-ED. Most standards in Japan use Carbon arc light fastness, but Xenon arc light fastness is closer to actual sunlight.
- Although KAC Red GRL-ED has strong light fastness properties under Carbon arc, it has relatively low light fastness levels under Xenon arc. Even without the addition of Flame retardant agent, the light fastness level of the dye is lower than grade 4.







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Recipe	% o.w.f.		Light Fastness ISO 105-B02 Xenon			
	Grey	Beige	Grade 4	Grade 5	Grade 4	Grade 5
KAC Yellow 3RL-ED	0.059	0.105	4 ↓		4 ↓	
KAC Red GRL-ED	0.032	0.054				
KAC Blue BG-ED(N)	0.061	0.032				
KAC Yellow 3RL-ED	0.059	0.105	4 ↓		4 ↓	
KAC Red GRL-ED	0.032	0.054				
KAC Blue BG-ED(N)	0.061	0.032				
Kayastab F02 (Flame retardant) 10% o.w.f.						
KAC Yellow 3RL-ED	0.059	0.105	4 ↓		4 ↓	
KAC Red GRL-ED	0.032	0.054				
KAC Blue BG-ED(N)	0.061	0.032				
Kayastab F02 (Flame retardant) 10% o.w.f.						
Reform UV-326 (UV absorber) 2% o.w.f.						

- The trichromatic combination used below, KAC Yellow 3RL-ED, Red GL-ED, and Blue GTL-ED(T), is Nippon Kayaku's high light fastness trichromatic colors. These trichromatic colors are recommended when light fastness standard of grade 5 or higher is required.
- When flame retardant agent is added, the light fastness decreases. To obtain high light fastness, UV absorber is recommended.

Recipe	% o.w.f.		Light Fastness ISO 105-B02 Xenon			
	Grey	Beige	Grade 5	Grade 6	Grade 5	Grade 6
KAC Yellow 3RL-ED	0.045	0.080	5		5	
KAC Red GL-ED	0.051	0.082				
KAC Blue GTL-ED(T)	0.270	0.130				
KAC Yellow 3RL-ED	0.045	0.080	5 ↓		5 ↓	
KAC Red GL-ED	0.051	0.082				
KAC Blue GTL-ED(T)	0.270	0.130				
Kayastab F02 (Flame retardant) 10% o.w.f.						
KAC Yellow 3RL-ED	0.045	0.080	5-6		5-6	
KAC Red GL-ED	0.051	0.082				
KAC Blue GTL-ED(T)	0.270	0.130				
Kayastab F02 (Flame retardant) 10% o.w.f.						
Reform UV-326 (UV absorber) 2% o.w.f.						

In summary, if high level of light fastness is required, the addition of UV absorber and the use of trichromatic combination KAC Yellow 3RL-ED, KAC Red GL-ED, and KAC Blue GTL-ED(T) is recommended.

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