

## 345110 – 345170 CIBACRON® Textile Dye

(Dyeing with CIBACRON® F - An excerpt from "Färbedreiecke" by Karin von Lerber)

All fabrics have to be dressed and sterilized before dyeing. Mercerized cotton fabrics require 40 % less colorant for the same hue than non-mercerized.

### General Information to Reactive Dyes:

The dye molecule has a reactive group which forms a chemical bond with the OH-group of the cellulose fibre. Sensitisation by skin contact is possible due to the reactive OH-group.

The dyeing process is divided in the migration phase and the fixing phase:

The migration phase can be changed in time and temperature, depending on the material and machinery available. We recommend to dye at 60°C during the migration phase.

The fixing phase is very susceptible to changes of temperature. It begins with the addition of alkali (soda). Deviations of the prescribed temperature (already at deviations of 5°C !) result that the final dye is much lighter: at too high temperatures due to hydrolysis and at too low temperatures due to an insufficient fixing.

### Addition of Salt:

Liquor ratio above 1:10

The amount of salt depends on the total coloring depth in percent:

Dye %	Salt g/l (64221) - Cotton -	Salt g/l (64221) - Linen -
< 0.5	10-20	30
0.5-1.0	20-30	30-40
1.0-3.0	30-60	40-70
> 3.0	60-80	70-80

The salt is added in two or more portions. Since the liquor ratio is very small, the salt must be mixed with a part of the liquor and then added to the rest, otherwise too much water would be added to the liquor.

### Addition of Alkali:

Liquor ratio above 1:10, temperature 60°C (The alkali amount is dependent of the temperature!)

The amount depends of the total coloring depth in percent:

Dye %	Soda g/l (64060) - Cotton -	Soda g/l (64060) - Linen -
< 0.5	2 - 3	2.5 - 3.5
0.5 - 1.0	3 - 4	3.5 - 4.5
1.0 - 3.0	4 - 6	4.5 - 6.5
> 3.0	6 - 10	6.5 - 10.5

**Dye Bath (Liquor):**

1:10 - 1:20

Reactive dyes react with the OH-groups of the cellulose. The greater the amount of water (dye bath), the greater the amount of colorant which reacts with water instead of with cellulose, i.e. the lighter the resulting color. The amount of water used should therefore be kept as small as possible.

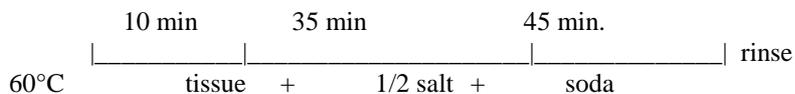
**Additives:**

Name	Amount
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- 78055 - Tinuvetin JUN	0.1 - 0.5 g/l Degassing agent, supports penetration.
Lyoprint PG	1 g/l for cotton 2 g/l for linen Weak oxidant (prevents the reduction of the colorants by heavy metals which are more and more present in cotton and linen).
- 64221 - Glauber's salt	see table (Na <sub>2</sub> SO <sub>4</sub> ), causes a charge change of the textile fibres and at the same time displaces the colorant from the water onto the fibre.
- 64060 - Soda	see table (Na <sub>2</sub> CO <sub>3</sub> ), assists the reaction between colorant and fibre (fixing phase).

**Coloring curves:**

**Cotton:**

At 20°C colorant, Tinuvetin JUN, Lyoprint RG 1g/l, add 1/2 portion of salt. Then heat solution to 60°C:



**Linen:**

At 20°C colorant, Tinuvetin JUN, Lyoprint RG 2 g/l, salt, add in small portions. Then heat solution to 80°C:

Tissue 10 min / 80°C  
30 Min / 60°C  
+ Soda, 40 min / 20°C  
Rinse

For linen a temperature of 80°C is recommended during the migration phase because of the high content of lignin which causes a poor migration and penetrability.

The temperature must be reduced to 60°C before the addition of soda (fixing phase).

More colorant is needed for linen to achieve the same shade as for cotton.

**Rinsing:**

Use softened (max. 10° fH) or deionized water.

1st rinsing bath:

COLD, to avoid hydrolysis of the alkali. Rinse alkali thoroughly. The rinsing process can then be interrupted and the tissue let rest in the cold water.

Following rinsing baths:

80°C. During this rinsing bath, the colorant which was not fixed by the tissue is rinsed out. Repeat until rinsing bath is clear (2 - 4 baths).

Boiling:

Boil at 98°C for 20 min. It is not necessary to add Tinovetin JUN as textile conservation, making further rinsing baths unnecessary.

Provided that sufficient rinsing baths were carried out before boiling the tissue, the same fastness can be achieved by boiling as by soaping with Tinovetin JUN.

**LIST OF THE USED COLORANTS AND ITS' LIGHTFASTNESS**

CIBACRON® F-Colorant	Lightfastness at 1/1 RT
- 345110 - CIBACRON® Yellow F-4G greenish	5 - 6
- 345120 - CIBACRON® Yellow F-3R	5 - 6
- 345130 - CIBACRON® Orange F-BR	7
- 345140 - CIBACRON® Red F-B	4 - 5
- 345150 - CIBACRON® Blue F-R	6
- 345160 - CIBACRON® Blue F-GFN	4 - 5

The lightfastness scale is 1 – 8; 1 being the lowest.

RT = Standard depth of shade. 1/1 corresponds to a medium dark shade.

The lighter the coloring, the lower the lightfastness, i.e. the darker the better.  
The lighter the coloring, the better the colorfastness.