



*Soluble Sulphur
For Cellulosics*

New Jersey Location

50 Page Road, Clifton, NJ 07012











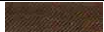
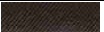















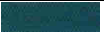







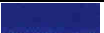










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South Carolina Location

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Phone. 864.295.1170 • Fax. 864.295.5606

www.greenvillecolorants.com • Customer Service. 800.832.8985 Fax. 800.763.1001

				Product Name	Light (Medium Shade)	Washing (Medium shade)			Rubbing (Medium Shade) Dry	Resin Finish Glyoxal
2.5		5.0		ADI Soluble Sulphur Yellow GG	3	4-5	5	5	4	5U
2.5		5.0		ADI Soluble Sulphur Yellow RR	3	4-5	5	5	4	4Y
2.5		5.0		ADI Soluble Sulphur Orange 2R	3	4-5	5	5	4	4Y
2.5		5.0		ADI Soluble Sulphur Orange Brown 9R	4	4-5	4-5	5	4	4Y
5.0		10.0		ADI Soluble Sulphur Brown GR	5-6	4-5	4-5	5	4	4Y
5.0		10.0		ADI Soluble Sulphur Brown RF	4-5	4-5	4-5	5	4	4Y
5.0		10.0		ADI Soluble Sulphur Brown BR	4	4-5	4-5	5	4	3-4 Y
2.5		5.0		ADI Soluble Sulphur Bordeaux 3B	4-5	3-4	2-3	3-4	3-4	3Y
5.0		10.0		ADI Soluble Sulphur Red Brown RT	3-4	3-4	2-3	3-4	4	4Y
5.0		10.0		ADI Soluble Sulphur Red Brown 6B	4-5	4-5	4-5	5	4-5	3R
5.0		10.0		ADI Soluble Sulphur Black Brown RD	4-5	4-5	4-5	5	4	4Y
5.0		10.0		ADI Soluble Sulphur Olive KD	4-5	4-5	4	5	4	3-4B
5.0		10.0		ADI Soluble Sulphur Olive BB	4-5	4	4	4-5	4	4G
2.5		5.0		ADI Soluble Sulphur Br. Green GO	4-5	4	3-4	4	4	4G
2.5		5.0		ADI Soluble Sulphur Br. Green 2B	5	4	3-4	5	3-4	4-5B
2.5		5.0		ADI Soluble Sulphur Indigo Green BG	5	3-4	2-3	3-4	4	3-4B
2.5		5.0		ADI Soluble Sulphur Pure Blue GL	5	4	3	4	4-5	4-5B
2.5		5.0		ADI Soluble Sulphur Pure Blue 6R	5	3-4	3-4	4-5	4-5	4-5R
5.0		10.0		ADI Soluble Sulphur Direct Blue 2R	5	4	4	4-5	4	4R
2.5		5.0		ADI Soluble Sulphur Blue RC	5	4	3-4	4	3-4	4-5R
2.5		5.0		ADI Soluble Sulphur Blue BC	5	4	4	4-5	3-4	4-5R
2.5		5.0		ADI Soluble Sulphur Navy Blue RN	5	4	4	4-5	4	4-5R
5.0		10.0		ADI Soluble Sulphur Black BN (F)	5-6	5	5	5	4	4-5G

Light Fastness
Wash fastness
Rubbing Fastness

JIS L-0842 (carbon arc lamp)
JIS L-0844 A-4
JIS L-0849

U
Y
R

Unchanged
Yellower
Redder

Shade Change

B Bluer
G Greener

General Properties

ADI Soluble Sulphur Dyes for cellulose are soluble in water.

Classification By Dyeing Properties

Group A

Yellow GG, Yellow RR,
Orange 2R, Orange Brown 9R,
Brown GN, Brown RF,
Brown BR Black Brown RD

Dyestuffs belonging to this group are comparatively slower in their development by oxidation. They have good leveling properties and good all around fastness. To ensure complete development of the dyestuffs, Use of oxidizing agents during the oxidation process is recommended.

Group B

Pure Blue GL, Pure Blue 6R
Indigo Green BG,
Navy Blue RN
Blue BC. Blue RC

Dyestuffs in this group are faster in their development by oxidation. Therefore, in the case of application by Pad-Jig or Jigger dyeing methods in which material to be dyed are exposed in air for a long time during dyeing, care should e taken to avoid selvedge bronzing trouble and splotchy dyeing cause by uneven oxidation.

Group C

Olive BB, Olive KD
Bordeaux 3B, Red Brown 6B
Red Brown RT, Br. Green GO
Br. Green 2B, Direct Blue 2R
Black BN(F)

Group C dyestuffs also are slower to oxidize, making them suitable for Pad-Jig and Jigger dyeing methods.

The other dyeing methods such as pad-dry-chemical-steam or pad-steam (pad with leuco-dye solution-steam) are not exposed to air during the dyeing, so neither selvedge trouble nor splotchy dyeing caused by oxidation occur even using Group B dyestuffs.

Dissolving of Dyestuffs

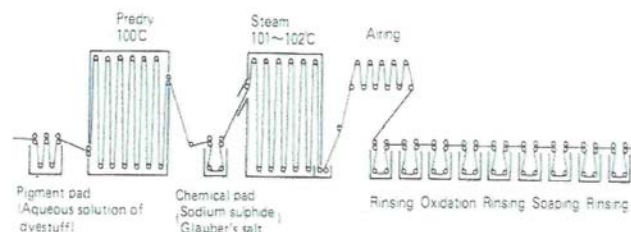
(To make an aqueous solution of ADI Soluble Sulphur Dyes)

ADI Soluble Sulphur Dyes are added in portions into a suitable amount of warm water (40-50°C) and stirred well to ensure complete dissolution of dyestuffs.

Pad-Jig and Pad-Dry-Chemical-Steam Dyeing Method

Pigment Pad

The aqueous solution of dyestuff already dissolved by the before mentioned method is used for padding.



Padding Time	4-6 sec.	Depending on quality of material dipped once or twice in the liquor.
Padding Temp	30-40°C	More satisfactory penetration may be obtained by the treatment at higher padding temperature. However, such high temperature should be avoided, as it is difficult to keep the volume of padding liquor constant near the boiling point. The temperature should always be kept constant.
Pick Up	55-70%	The pick up varies according to the type of material and the depth of shade.
Padding Liquor		The amount of padding liquor should always be kept constant. Any variation of the amount may cause unfavorable influence on the padding time and may occur tailing on the material to be dyed.
Auxiliaries		It is recommended to add 0.5 - 1.0 g/l sodium alginate to the padding liquor in order to prevent migrating towards the surface of the material during dyeing.

Intermediate Drying

In dyeing factories where drying equipment is not available, dyeing can be carried out in wet state of material in Jigger. However, in this case, it is necessary to use a higher amount of Glauber's salt to prevent dyes on the material from bleeding out into the Jigger.

Dryer:	Hot flue dryer (Cylinder dryer cannot be used)
Drying Temperature:	100-120°C
Drying Time:	Varies with the type of dryer, dyeing temperature and cloth speed.

Development

Jigger Development Method

Sodium Sulphide 60% Flake:	10- 350g/l	
Glauber's salt:	5-20 g/l	To help prevent the padded dyestuffs from bleeding out into the liquor.
Addition of Padding Liquor		Necessary especially when there is no intermediate drying so as to prevent the pregated dyestuffs from bleeding into the liquor.
Liquor ratio:	1:2 – 1:4	The liquor ratio should be properly adjusted depending on the dyeing machine and the type of material.
Dyeing time:	4-6 ends	
Rinsing:	4 ends with abundant water	

Optimum Amounts Of Reducing Agent And Dying Temperature For Jig Development.

Shade	Group A	Group B	Glauber's Salt
Pale	10-20 g/l	7-13 g/l	5-10 g/l
Medium	20-30 g/l	13-16 g/l	10-15 g/l
Deep	30-35 g/l	16-20 g/l	15-20 g/l
Dyeing Temperature	90-95°C	65-70°C	

Liquor Ratio

The dyeing conditions for group C dyestuffs depend on the individual situation, that is, the character of group C dyestuffs are similar to group A. However, when they are used together with group A or B, they are applied similarly to the conditions of that group

Steam Development Method

Chemical Pad: Sodium Sulfide 60% Flake Glauber's Salt	10-100 g/l 30 g/l
Addition of Padding Liquor	50-60 ml/l for 100% cotton 20-30 ml/l for Polyester/cotton blend
Chemical Padding Temperature Pick-Up Steaming Temperature Steam Time Rinsing And Soaping	Room temperature 85-95% 101-102°C 15-60 sec.

At the beginning of chemical padding, much of the dyestuffs bleed out into the chemical bath (capacity approx. 30 liters). Hence it is advisable to add dyestuff solution (padding liquor) to the chemical bath at the start.

With the exception off blue and indigo Sulphur dyes, generally higher color yield can be obtained by using excessive amounts of sodium sulfide. However, this is not advisable as it may cause troubles in the subsequent rinsing and oxidation process.

Pad-Steam Method

(Pad with Leuco-dye solution-steam)

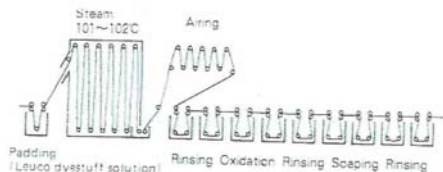
Preparation of Dyestuff Solution

The required amount of sodium sulfide are pre-dissolved and the poured into the aqueous dyestuff solution prepared as to the before mentioned dissolving method at 20-25°C.

To ensure complete eduction of the dyestuff, the concentration of aqueous dye solution should be adjusted in consideration of the volume of sodium sulfide solution to be added.

Padding

(Pad with leuco dye solution)



To avoid tailing, it is advisable to adjust the concentration of the initial padding liquor (approximately 30 liters) as follows:

Pale shade	Dilute by 20-25% with water
Medium shade	Dilute by 15-20% with water
Deep Shade	Dilute by 10-15% with water

Padding temperature 20-25°C

Padding time 2-3 sec.

Pick-up 85-95%

Steaming temperature 101-102°C

Rinsing and soaping

The shorter the padding time, the less possibility for tailing, hence padding once is better than padding twice.

Any nap, uneven scouring and uneven drying of material before dyeing should absolutely be avoided. Any water drooping on the dried material after padding should also be avoided.

Oxidation Method

As some yellow and orange Sulphur dyes are comparatively slower in their development by oxidation, in order to prevent uneven dyeing caused by insufficient oxidation, to ensure complete development and to make their color tone stable in lapse of time, the following after treatments re effective.

Optimum Amounts Of Oxidation Agents For Pad-Jig And Continuous Dyeing

	<u>Application Amounts</u>	<u>Temperature</u>
Hydrogen Peroxide (30%) Acetic Acid (98%)	5-20 ml/l 10-20 ml/l	30-35°C
Ammonium Persulphate Acetic acid (98%)	5-20 ml/l 10-20 ml/l	35-40°C
Sodium Bichromate Acetic Acid (98%)	5-20 ml/l 10-20 ml/l	55-40°C
ADI Oxidant OY Acetic Acid (98%)	3-5 ml/l 10-20 ml/l	25-30°C

The dyeings in this card have been oxidized by the Hydrogen Peroxide or the ADI Oxidant OY method. The former has been applied to Yellow GG, Yellow RR and Yellow 2R and the latter has been applied to the remaining ADI Soluble Sulphur Dyes.

**Disclaimer:

Seller assumes no obligation or liability, whether in contract, tort, negligence, strict liability or misrepresentation for any advice or assistance given Buyer in relation to the merchandise, such advice or assistance, written or oral, being given without charge and accepted by Buyer's request and at his sole and exclusive risk. Samples will be made available at Buyer's request. Buyers are urged to make their own tests of any product described herein or of any proposed application with respect to which advice or assistance from Seller may be sought.

The fastness properties of the enclosed dyeings are dependent upon the conditions to which they are subjected, and may vary considerably if the dyed fabric is treated with additional chemicals such as fixing or finishing agents. Consequently, the dyed/finished fabric should be tested to assure that the fastness properties meet the necessary requirement. Not all shades can be produced with desired fastness properties. This point should be carefully considered before putting shades into production. The information given is based on work done in our laboratories; consideration should be given to possible variations under local conditions.