

The process of manufacturing this color and the methods of its application in dyeing are patented to us in the United States and all other industrial countries.

Diamine Cutch dyes unmoiranted cotton in the first instance a violet shade which by a simple treatment is converted into a brown. Two methods are applicable to effect this:

(a) The dyeing is diazotised in the usual way and then passed through a weak soda solution.

(b) The dyeing is diazotised and then developed with Fast Blue Developer A.D. or Developer No. 4.

The process of working, as well as the properties of the dyeings obtained are described hereafter and the accompanying dyeings show a few of the brown shades obtainable with Diamine Cutch.

The advantages of Diamine Cutch, as compared with such brown colors as dye in a single bath, are the superior fastness to washing and light and the property not to bleed at all or in the case of some developers only so little, that the dyed goods may be used without objection for weaving along with white.

Compared with Cutch the following may be said:

The cotton fibre is not injured in any way in its softness and spinning capacity by being dyed with Diamine Cutch and therefore is superior in quality to cotton dyed with Cutch.

Diamine Cutch penetrates the hardest twisted yarns and most closely woven cotton and linen fabrics, while hitherto such material could not be dyed through with Cutch.

The dyeings done with Diamine Cutch are faster to bleaching than Cutch dyeings.

Another advantage, though it only applies to a few trades, is, that Diamine Cutch may be discharged.

Diamine Cutch should in consequence of its properties play an important part in the dyeing of loose cotton, cotton sliver, cops, yarns and piece-goods and also in linen dyeing.

Diamine Cutch costs for light shades about as much as Cutch, while practical work has demonstrated that for deep shades it is not much dearer.

DYEING RECIPES.

1. 3 lbs. Diamine Cutch, patented, diazotised and passed through a tepid soda bath.
2. 5 lbs. Diamine Cutch, patented, diazotised and passed through a tepid soda bath.
3. 5 lbs. Diamine Cutch, patented, diazotised and developed with Fast Blue Developer A.D.
4. 7 lbs. Diamine Cutch, patented, diazotised and developed with Fast Blue Developer A.D.
5. 4½ lbs. Diamine Cutch, patented, diazotised and developed with Developer No. 2, then soaped.
6. 5 lbs. Diamine Cutch, patented.
7. 4½ lbs. Diamine Cutch, patented.
8. 3½ lbs. Diamine Cutch, patented.

METHOD OF DYEING, DIAZOTISING AND DEVELOPING 100 LBS OF COTTON.

1st Bath, (Dyeing): Dye at the boil for one hour with the addition of 30 lbs. common salt, then rinse. The baths do not exhaust and are therefore to be preserved.

2nd Bath, (Diazotising): Pass through a cold bath for 15 minutes, containing 3 per cent. Nitrite, previously dissolved in warm water, and 10 per cent. Muriatic Acid, 33° Tw.

For the numbers 3, 4 and 5 rinse in water weakly acidulated with muriatic acid, then enter at once the developing bath.

For the numbers 1, 2, 6, 7 and 8 after diazotising pass through a tepid bath of 86 to 104° F., containing 1½ to 2 per cent. of calculated soda per 100 gallons water, and then wash.

3rd Bath, (Developing): Pass No. 3 and 4 through a bath, for 15 minutes, containing 1½ lbs. Fast Blue Developer A.D., dissolved in 14 ozs. muriatic acid, afterwards diluted with 4 gallons of boiling water. Then wash.

For No. 5 pass through a bath containing 1½ gallons of a solution of 19 parts Developer No. 2, dissolved in water with 24 parts Soda Lye of 75° Tw. Then soap well.

REMARKS.

The dyeings diazotised and then treated with Soda show an excellent fastness to acid and milling almost equalling in that respect those done with Cutch, while their fastness to light is nearly as good. Dyeings developed with Fast Blue Developer A.D. and Developer No. 4, however, are equally as fast to light as Cutch

dyeings. The dyeings developed with Developer No. 4 must be well soaped after developing to avoid a tendency to bleed.

Diamine Cutch can be shaded in the same bath with all our diazotisable Diamine Colors such as Diamine Black, pat., R.O., B.O., B.H., Diamine Blue Black E., pat., Diamine Brown V., pat., Cotton Brown A. and N., Diamine Orange, Diamine Fast Yellow A., Primuline; they can also be topped with basic dyes after developing.

Diamine Cutch does not quite exhaust in the dye bath, which may be preserved. When this is not possible, use concentrated baths, which condense further during dyeing by boiling incessantly.

Diamine Cutch can be dyed, diazotised and developed in wooden or copper vessels. For those interested in the dyeing of loose cotton we have a special sample card.

FAST MODE SHADES.

For some time Mr. Alex. P. Mende, 14 Water St., N.Y., has been engaged in manufacturing a class of dyestuffs which are known under the name of "Fast Mode" dyes, and quite extensively used in Europe for dyeing piece-goods as well as yarns; and though they can not be classed among the "cheap" dyestuffs, they are in some manufacturing districts of Germany almost exclusively used for the production of a countless variety of mode shades, the most of which are fast to washing and many fast to acids.

Mr. Albert Stein, a practical dyer, writes that he can hardly imagine a dye works where many fast dyes are produced at reasonably remunerative prices, without the use of fast mode dyestuffs as self-colors, or in combination with other dyes.

The yarns or piece-goods either dyed or topped with the new dyestuffs are uncommonly mild, and even very dark colors, such as dark browns and olives, which are topped or toned with any of the Fast Mode dyes, acquire thereby a peculiar mildness and brilliancy which is scarcely obtained by other processes.

They are named to express as nearly as possible the shades obtained with them; moreover, they do not rub off or bleed in washing. Mr. Stein considers these colors indispensable for the production of fast, light and bright mode shades, and predicts for them a large trade when more durable cotton and linen goods with fast colors shall again come in favor.

Mixed fibres dye also with them at a very great saving in cost of dyeing.

The new products present the important advantage that they can be dyed in one bath. It is known how much time is often required to dye a bright, light mode shade to match, especially when the dyer must depend upon his own judgment and his eye in proportioning the various components of the color, and when two or more baths are required for the purpose.

The use of Fast Mode dyestuffs involves a considerable saving in time, labor, steam and fuel.

The number of Fast Mode dyes is already pretty large, and is constantly increasing; but it is not necessary for a dyer to have them all on hand, since they readily combine with each other and can be toned in the same bath also with anilines, always producing perfectly matched shades.

These mode dyes can be classed in two groups, viz.: Direct Dyeing ones, and such as require a tannin mordant. The former class includes: Gold, New Gold, Blonde, Tea-Green, Leather Yellow, Serpentine, Chocolate, Cinnamon-Brown, Golden-Brown, Fawn, Havana, Iron-Gray, Slate, Dust and Silver-Gray, Fast Olive, etc.

A tannin mordant is required for: Plum, Currant, Pigeon-Blue, Copper-Red, Steel-Blue, Pure-Blue, Violet, Leaf-Green, Vat-Blue B and G, Fast-Red, Germania-Red, etc., the Tannin (nutgalls or sumac) being fixed as usual by a bath of antimony salt, or for brilliant shades, stannic chlorid. The latter class of dyestuffs also dye cotton without tannin, but the colors are in that case less fast and less full. Fast Red, for instance, when dyed with a small quantity of dyestuff and alum gives a handsome Rose, equal in fastness to Safflower Rose, by entering the dye-bath cold, adding the dyestuff gradually and heating only when the shade is nearly obtained; heating, however, gives the color a bluer tone. Full shades of Fast Red and Vat Blue always require a tannin bath; and dark modes a bottom of sumac or nutgalls and iron.

Mr. Mende has further improved on the fastness and brightness of these Dyes, and has overcome the obstacle of higher cost by manufacturing them in the United States, and by selling at lowest possible prices; in fact, much below the European prices.

Mr. Mende also manufactures Direct Dyeing Blacks of the same class and suitable for all cotton, all wool and for mixed fibres; the latest attainment is that these Mode Colors and Blacks can also be applied for direct printing with or without steaming.