Palatine Fast Colours in Wool Dyeing

By Dr. *Nüsslein*

Some considerable time has passed since the conception of colour fastness could be brought home to the broad masses of the public. Notwithstanding initial difficulties and a great variety of handicaps which stood in the way of progress, there is today no longer any doubt as to the advantages — whether economic or aesthetic — derived by the wearer of a fast-dyed piece of clothing. It is an established fact that fastness of colour is beginning to be appreciated and that by and by the public will be fully alive to its importance.

Matters, in our opinion, are least complicated in the industry consuming cotton and similar fibres, where thanks to the inventive mind and practical collaboration manufacturer and consumer are in a position to comply in a far-reaching manner with their mutual requirements. It is not so in the woollen industry. Looking for reasons, we could find a great number. Not the least of them is the fact that a much longer time ago the wool industry could already boast a comparatively great number of very good dyestuffs, some of which are of importance even today. The conception of fastness which was long considered to be indissolubly bound up with the dyeing of the wool in the loose state had its origin in this very time. The description of "wool-dyed" as denoting colour fastness did not begin to lose in importance until the chrome developing dyestuffs were introduced also in piece-dyeing, where their advantages were ever more appreciated.

For many years the colour works have been placing such dyestuffs on the market which, whilst allowing to be dyed on piece-goods in a comparatively simple manner, possessed very good fastness. New economic considerations, however, which since the beginning of the 19th century came more and more to the fore, resulted in the demand for a very cheap and simple method of dyeing. These demands were met before all by the acid dyeing colours. Their method of application and the possibility of producing goods of excellent appearance in a most simple manner, in addition to price considerations, caused them to be adopted on a broad basis. There can be no doubt that not every woollen article must be fast, and it is just as certain that today there are available a great many acid colours which satisfy ordinary demands in respect to fastness. Some of the representatives of this class even possess excellent fastness to light. But the regrettable fact remains that many articles which, considering the value of the material they are made of, should never have been produced with any but fast dyestuffs, are dyed with cheap colouring matters of unsatisfactory fastness.

It would be going too far here to enter into the relations of fastness on the one hand and manufacturers, traders and consumers on the other.

As already mentioned, the chrome developing dyestuffs before all are for us the representatives of the fastest dyestuffs and the acid colours the products most easily to apply. It is an old problem to combine the fastness of one class with the simple method of application of the other.

A group of dyestuffs has been available for some time which answers these requirements. The Palatine Fast Colours, under which name

these dyestuffs have been grouped, are chrome developing dyestuffs in character, but acid colours in their method of dyeing. The formation of the lake, which otherwise takes place on the fibre, is already accomplished in the course of manufacture. Dyeing is carried out with the addition of sulphuric acid, though as regards the quantity required for the production of a satisfactory shade, the Palatine Fast Colours differ from the acid colours. Fears entertained at the outset in certain quarters in respect of detrimental effects on material and apparatus have not materialised. Even when employing 8—10% sulphuric acid the quality of the pieces dyed with Palatine Fast Colours is considered very good, sometimes even better than of goods dyed according to the customary method. The quantities of acid indicated are required for fully developing the fastness and body of shade. In dyeing the Palatine Fast Colours differ very considerably from the acid dyeing products by Glauber's salt bringing about a diminution of the levelling property, so that the dyestuffs are best dyed without this levelling agent so important in wool dyeing. This method of dyeing may strike the practical man as a little odd, but nevertheless beautiful and excellently level results will be obtained with Palatine Fast Colours also under different conditions, and even on carbonised, non-neutralised goods. There can be no doubt that many practical men will be slow in grasping this fact, as it is altogether incompatible with former wont and practice. But to be progressive it is necessary to revise one's views from time to time and not to be prejudiced by antiquated notions.

The duration of dyeing when working with Palatine Fast Colours somewhat exceeds the time required for acid colours. If it is remembered, however, that the advantages derived from this class of dyestuffs are very considerable indeed, this will not be found to matter. The art of shading, which is not quite so easy with these dyestuffs as hitherto, may be acquired. As proved by dozens of cases in practice no difficulties are to be anticipated on that score after a few trials.

The new dyestuffs are valuable not only because they fulfil the demands made by manufacturers in such a high degree, but before all because the wearer of goods produced with Palatine Fast Colours can be convinced that they really answer his requirements in respect of fastness. The Palatine Fast Colours possess fastness to light, washing and water, perspiration and atmospherical conditions in a degree as we used to expect of chrome developing dyestuffs only, but which we look for in vain in the case of acid colours.

The good fastness properties are an indication of what articles should be dyed with Palatine Fast Colours. Gentlemen's suitings come before all into consideration. Though many quarters have come to the conclusion that apart from chrome developing dyestuffs the Palatine Fast Colours are the only products admissible for better class goods, combinations of ordinary acid dyeing colours are neverthless much in use, notwithstanding the fact that the fastness obtained frequently falls far short of that which it is the buyer's right to expect. Similar conditions are obtaining in the manufacture of ladies' better class costume cloths, rain coat materials etc. It is just wearing apparel of good resistance to atmospheric conditions for which the Palatine Fast Colours are excellently adapted. Even goods containing cotton may be dyed satisfactorily with these products without the risk of a perceptible injury in consequence of the amount of sulphuric acid used, provided the goods are thoroughly rinsed after dyeing.

They are just as well adapted for union linings, on which the most exacting demands in respect of fastness to perspiration are necessarily made, as for all-wool goods. Their application for articles containing cotton which has been dyed with sulphur dyestuffs is, however, deprecated.

Owing to their fastness the dyestuffs are of course also recommended for dyeing weaving and knitting yarns intended for hosiery and similar goods. Their fastness to washing and perspiration is of greatest importance in this instance.

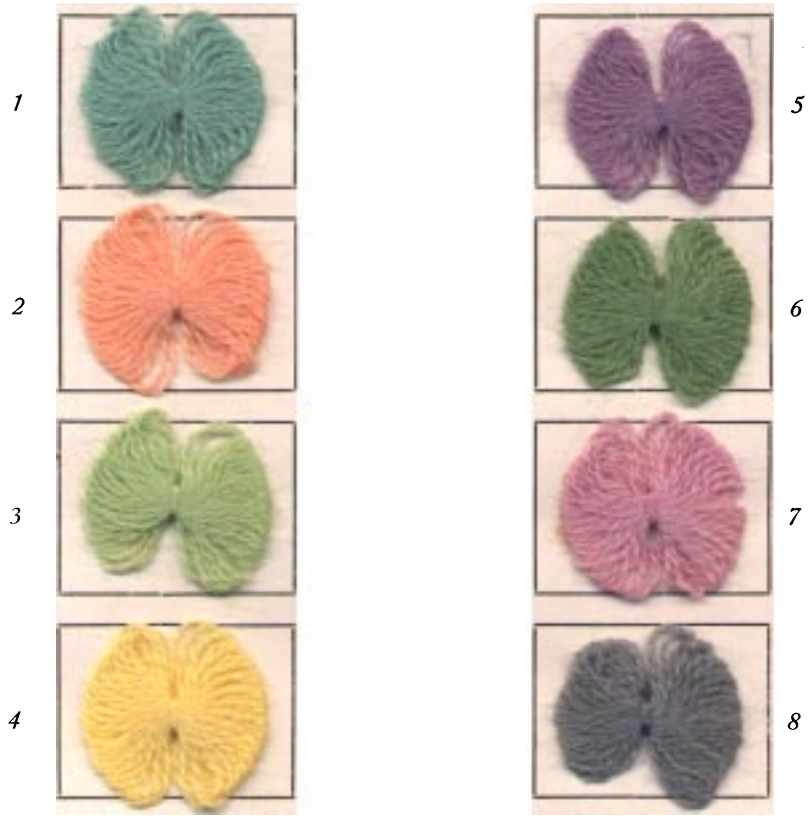
The Palatine Fast Colours may also be used for dyeing loose wool and slubbing. The number of products satisfying the requirements of a very severe milling as is essential for military cloths etc. being, however, still limited, they cannot come into consideration for such purposes generally.

It is to be expected that colour manufacturers, before all the I. G. Farbenindustrie Aktiengesellschaft will find ways and means to produce in the course of time dyestuffs answering these requirements.

The progress made by chemists in this new dyestuff production during the last two years holds out hopes for such object beeing attained. The originally very meagre range has

been enlarged by the I. G. to such an extent as has not been equalled in the same space of time by any other class of dyestuffs. A wide range of shades may now be produced with Palatine Fast Colours, though the brightness of many acid colours is not attained. In this respect the situation is very much the same as in the case of the chrome developing dyestuffs, we are, however, in a position to satisfy the most important requirements. Especially for the production of the so-called mode shades on piece and yarn a whole series of dyestuffs is available which in suitable combinations must without fail lead to the desired result, if working is carried out in a proper manner.

Palatine Fast Colours



1. 0,1 % Palatine Fast Green BL conc.
2. 0,05 % Palatine Fast Orange GN
   0,03 % „ „ Pink B
3. 0,03 % Palatine Fast Green BL conc.
   0,23 % „ „ Yellow 3GN
4. 0,04 % Palatine Fast Yellow GR
5. 0,11 % Palatine Fast Pink B
   0,025% „ „ Orange GN
   0,1 % Palatine Fast Blue GR
6. 0,15 % Palatine Fast Green BL conc.
   0,08 % „ „ Orange GN
   0,04 % „ „ Yellow GR
7. 0,15 % Palatine Fast Pink B
   0,035% „ „ Blue GG
8. 0,22 % Palatine Fast Blue GR
   0,1 % „ „ Orange GN

It is possible that in certain cases the cost of the products will be considered too high, but it will, as with others, be only a question of time when it will be possible to make reductions in price. But even under present circumstances, the fact that the value of the dyestuffs justifies their cost should not be lost sight of. The satisfaction at the smooth course of manufacture coupled with the savings effected by avoiding faulty goods and claims are not to be underrated. Another point is that material leaving the dyehouse "palatine fast dyed" is sure to answer all fastness requirements of its wearer.