

A New Method of Easily and Quickly Distinguishing Viscose and Cuprammonium Rayon

By H. HOZ

With the extensive use of all four types of rayon in the fabrics of today, it is quite necessary for many men in the textile industry to quickly and accurately distinguish between the viscose, nitro-cellulose, cuprammonium and cellulose-acetate rayons.

Many mills and commission houses do not have a laboratory and consequently methods to be practical and commercial should be simple, easy of execution and still give accurate results.

Nitro-cellulose and cellulose-acetate rayon are easily identified as the former turns blue when diphenylamin sulphate is poured over it and the latter is the only rayon which dissolves immediately in acetone. When burned, cellulose-acetate forms a globule like silk, but smells like cotton, not like silk.

The identification, or distinction between viscose and cuprammonium rayon, however, is decidedly more complicated.

The writer has been studying the methods adopted by the Sub-Committee on rayon of Committee D-13 of the American Society of Testing Materials and believes that very accurate and reliable results can be obtained providing a first class laboratory and a most experienced man is available to run the somewhat (from his point of view) tedious and long methods recommended.

It is the opinion of the writer that the presence of sulphur remnants in viscose rayon, which varies considerably between different brands, and which in the near future may be perhaps impossible to detect on account of improvements in methods of manufacture, may be much more easily and simply determined by the well-known method of boiling with an alkaline solution of

silver nitrate. If sulphur remnants are present, viscose turns a brown color. This method, however, is less sensitive than the above mentioned Committee D-13 test.

The following method is an easier and more accurate method of distinguishing between viscose and cuprammonium rayon. Place small samples of viscose or cuprammonium rayon in a small test-tube, dye for five minutes at room temperature in a solution of 15cc gallate of iron ink, made of Ink blue H (Geigy), 20cc of a 0.5 per cent Eosine-solution and 30cc water. Rinse thoroughly with water.

If the sample is a bluish red, it is viscose rayon,

If the sample is pure blue, it is cuprammonium rayon.

The Eosine-solution is added for the sole purpose of more clearly showing the reaction, as without it, viscose rayon is a light blue, cuprammonium a darker blue.

It is interesting to note that the purely aqueous solutions of these dyestuffs only cause the reaction when in connection with gallate of iron ink.

The above mentioned method takes but a few minutes to complete and a relatively small amount of yarn or filaments are required.

The formula for gallate of iron ink is as follows:—

25 g	ether tannin S	Geigy
7 g	gallic acid WC	cryst. Geigy
5 g	ink-blue H	Geigy
30 g	ferrous sulphate	
7 g	sulphuric acid	20° Bé
1 g	phenol or salicylic acid	

—
brought up to 1 liter.