

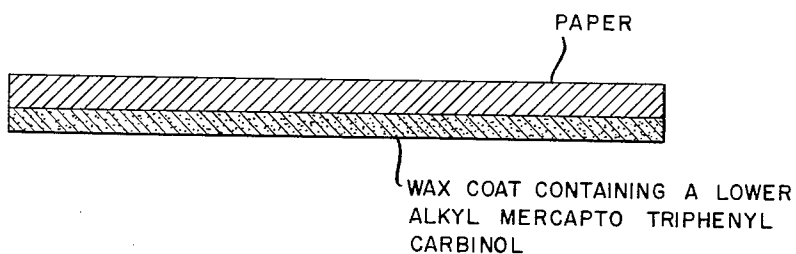
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HECTOGRAPHIC COLORING PAPER HAVING A TRANSFER COAT CONTAINING
LOWER ALKYL MERCAPTO TRIPHENYL CARBINOL

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HECTOGRAPHIC COLORING PAPER HAVING A TRANSFER COAT CONTAINING LOWER ALKYL MERCAPTO TRIPHENYL CARBINOL

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9 Claims. (Cl. 117—36.2)

The present invention relates to a hectographic coloring paper for producing hectographic copies according to the alcohol transfer process.

The drawing illustrates the invention and shows the broad concept of the invention as covered by the claims in a lower alkyl mercaptotriphenyl carbinol.

It is well-known that when using hectographing papers containing the usual basic dyes it is often almost unavoidable that the hectographic copies, as well as the hands and even the clothing of the persons working with such papers will be soiled by particles flaking off the colored coating.

There have been numerous proposals of means for avoiding this disadvantage. Thus, for example, it has been proposed to use in place of basic dyes the components of azo dyes which are only weakly colored and to develop the pigmentation on the copy paper by means of an alkaline substance which is contained in the copying fluid.

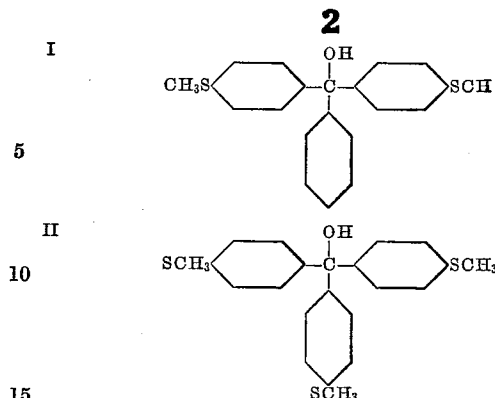
In actual practice, however, this method has the disadvantage that only completely wood-free, alkali-resistant papers can be used for the copy paper, and that the inexpensive types of wood-pulp paper which are used primarily in the conventional transfer processes must be avoided since they become decolorized by the alkaline copying fluid.

A further disadvantage of the transfer papers prepared with diazo compounds and components of different dyes consists in the fact that they are to a certain extent sensitive to light and must therefore be stored under cover, which is often considered a very great inconvenience.

Even the proposed application of carbinols or carbinolic ethers of triphenyl methane dyes cannot be regarded as a completely satisfactory and practical solution of the problem since the alkaline substances which are added to the coating material for stabilizing the same and for protecting it from undesirable influences of acids are subject to the influence of the carbon dioxide in the air and are neutralized within a relatively short time. The consequence of this is that the carbon dioxide of the air is no longer kept away and will react with the carbinols or the carbinolic ethers. This means that these papers can be stored only for a very limited period and therefore do not comply with the requirements of actual practice.

For the same reason, these papers are also soon affected by the influences of other acids, for example, when the papers are touched by the hands which always carry traces of organic acids due to secretions of the skin. It is therefore unavoidable when handling these papers that the hands will be soiled.

It has now been found according to the present invention that the mentioned difficulties may be avoided if triphenyl carbinols or triphenyl carbinolic ethers are used which contain methyl mercapto groups. Examples of these materials are, for instance, the following compounds: (I) 4,4'-di-(methyl mercapto)-triphenyl carbinol and (II) 4,4',4''-tri-(methyl mercapto)-triphenyl carbinol



The production of alkyl-mercapto-triphenyl-carbinol and triphenylcarbinols is described in an article by K. Brand and O. Stallmann in "Journal für praktische Chemie" (107), 1924, pages 358 to 382.

These compounds are likewise colorless substances just like the corresponding carbinol bases of the known triphenyl methane dyes with dimethyl amino groups, but they differ from the latter very characteristically by their reaction to acids. While the carbinols of the triphenyl methane dyes with dimethyl amino groups such as, for example, the crystal violet carbinol, are extremely sensitive to acids and are converted into the respective dyes already by traces of the weakest inorganic and organic acids, the methyl mercapto triphenyl carbinols are entirely indifferent to weak inorganic or organic acids. Only very strong organic and inorganic acids such as, for example, trichloroacetic acid or hydrochloric acid will be able to convert these carbinols and the ethers thereof into the corresponding, intensively colored dye salts. Therefore, when handling hectographic coloring papers which contain carbinol bases or carbinol ethers with methyl mercapto groups in place of carbinol bases or carbinolic ethers of the usual triphenyl methane, there is no possibility of soiled hands, regardless of whether these papers are fresh or have already been stored for a considerable length of time. Furthermore, the hectographic coloring papers which are produced with methyl mercapto triphenyl carbinol bases have an unlimited stability in storage since the new compounds are stable and will not go into reaction with the carbon dioxide of the air. A further advantage of these papers is that the dyes produced from the methyl mercapto triphenyl carbinols by a reaction with acids are more intensive and productive than the known triphenyl methane dyes with dimethyl amino groups, which is due to the stronger bathochrome effect of the methyl mercapto group in comparison to the dimethyl amino group. It is therefore possible to attain the desired color intensity of the copies already with considerably less amounts of substance than with triphenyl carbinol bases containing dimethyl amino groups.

In accordance with the extremely low quantity of mercapto compound which is transferred at every printing operation upon the alcohol-moistened sheet of copy paper, there is also only a very small quantity of strong acid required for coating the same in order to start the color reaction. Thus, there is absolutely no danger in handling or working with the duplicating paper.

It has further been found according to the invention that triphenyl carbinols which contain methyl mercapto as well as dimethyl amino groups within the same molecule may be used with considerable advantage for coating hectographic coloring papers since it is easily possible by

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gradually replacing the methyl mercapto groups with amino groups to graduate the sensitivity to acids at any desired degree, which is of a great advantage for the particular purpose of the hectographic paper.

Example I

A mixture of 20 parts of 4-methyl mercapto-triphenyl carbinol and 50 parts of wax is finely ground up, melted, and applied in the usual manner upon a suitable paper base. The resulting paper produces violet copies.

Example II

A mixture of 50 parts of 4,4'-di-(methyl mercapto)-triphenyl carbinol and 50 parts of wax is treated in the same manner as stated in Example I for coating the paper base. The resulting paper produces blue copies.

Example III

A mixture of 20 parts of 4-dimethyl-amino 4',4''-di-(methyl mercapto)-triphenyl carbinol is treated as stated in Example I. The resulting paper produces blue-violet copies.

Although my invention has been illustrated and described with reference to the preferred embodiments thereof, I wish to have it understood that it is in no way limited to the details of such embodiments or to the specific examples described, but is capable of numerous modifications within the scope of the appended claims.

Having thus fully disclosed my invention, what I claim is:

1. A transfer coloring paper for the alcohol transfer process in an acid medium having a coating containing as a compound for producing a color reaction a lower alkyl mercapto triphenyl carbinol.

2. A transfer coloring paper for the alcohol transfer process in an acid medium having a coating containing as a compound for producing a color reaction a lower alkyl amino lower alkyl mercapto triphenyl carbinol.

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3. A transfer coloring paper for the alcohol transfer process in an acid medium having a coating containing a methyl mercapto triphenyl carbinol and wax.

4. A transfer coloring paper for the alcohol transfer process in an acid medium having a coating containing 4-methyl mercapto triphenyl carbinol and wax.

5. A transfer coloring paper for the alcohol transfer process in an acid medium having a coating containing about 20 parts of 4-methyl mercapto triphenyl carbinol and about 50 parts of wax.

6. A transfer coloring paper for the alcohol transfer process in an acid medium having a coating containing 4,4'-di-methyl mercapto triphenyl carbinol and wax.

7. A transfer coloring paper for the alcohol transfer process in an acid medium having a coating containing about 50 parts of 4,4'-dimethyl mercapto triphenyl carbinol and about 50 parts of wax.

8. A transfer coloring paper for the alcohol transfer process in an acid medium having a coating containing 4-dimethyl amino 4',4''-di-methyl mercapto triphenyl carbinol and wax.

9. A transfer coloring paper for the alcohol transfer process in an acid medium having a coating containing about 20 parts of 4-dimethyl amino 4',4''-di-methyl mercapto triphenyl carbinol and about 50 parts of wax.

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