

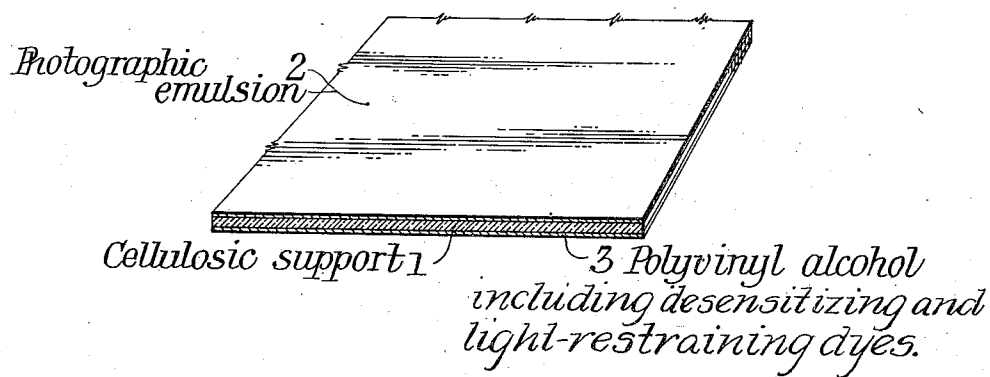
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DYE CARRYING LAYER FOR PHOTOGRAPHIC FILMS AND THE LIKE

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DYE-CARRYING LAYER FOR PHOTOGRAPHIC FILMS AND THE LIKE

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This invention relates to anti-halation and desensitizing coatings for photographic films and plates.

One source of trouble encountered in all photographic work is halation, that is the reflection of rays upon the rear surface of the emulsion layer from the rear surface of its support, such as cellulosic film or glass.

It has been proposed to overcome this difficulty by applying, to the rear surface of the support for the photographic emulsion, a layer of dye which is absorptive of light of the wave length to which the emulsion is sensitive. Since the exposed surface of this dye layer is frequently roughened in the process of applying it to the support, it becomes necessary to polish it so that there may not be a prohibitive amount of friction between the film and the parts which it encounters in moving through a projector.

It has also been proposed to incorporate such a dye in a colloid or other carrier layer but in the past many such carrier layers have been open to the objection that they were not instantly soluble and tended at first to become gummy so that if the film was processed in a continuous automatic machine, such softened carrier layer would separate from the film and collect on the rolls and sprockets of the machine.

In accordance with one feature of the present invention it is proposed to apply an anti-halation dye-carrier layer on the rear surface of a support for a photographic emulsion, said layer being formed of a material which may be applied to the support as a continuous film having a smooth surface and in which there is incorporated an absorptive dye for the actinic rays.

Another feature of the invention relates to the use of a desensitizing dye in a carrier layer of polyvinyl alcohol applied to a photographic film or plate so that it may be used in a process of daylight developing.

An additional feature of the invention is

the incorporation of a desensitizing dye with the absorptive dye in the carrier layer applied to the support for a photographic emulsion so that it may be used in a process of daylight developing.

A further feature of the invention is the use of polyvinyl alcohol or oxy ethylene with an absorptive dye therein as an anti-halation coating for photographic films and plates.

Other features will appear from the description and claims.

We have discovered that the synthetic product, polyvinyl alcohol or oxy ethylene, as prepared by H. Staudinger (Ber. 59, p. 3069, (1926)) and also by W. O. Herrmann and W. Haehnel (Ber. 60, p. 1658, (1927)), may be used to form a valuable anti-halation support for photographic plates and films. This material is soluble to colloidal solutions in water, which can be precipitated by alcohol. The solution in water at a concentration of 10% can be coated in a known manner, similar to the coating of starch paste, sizes, and the like, on the back of photographic films and plates, forming a glass-clear, continuous film, which readily redissolves in water or in the aqueous solutions used in photographic processing. If this solution has admixed with it a dye or other material which is opaque to photographically active rays, there is obtained a valuable anti-halation layer which is rapidly and completely discharged by the photographic bath. The coating may also be made with colloidal manganese oxide in place of a dye, or the anti-halation dye may be combined with a desensitizing dye, so that on dissolving in the developer a process of daylight developing is immediately secured.

While we do not intend to limit our invention to the use of any particular dye, we have found that the polyvinyl alcohol has the capacity of holding without crystallization in the dry film, the following anti-

halation dyes in amounts up to 10% of the weight of the dry polyvinyl alcohol:

	Auramine.	Ponceau 6R
	Helianthin	Crocein Scarlet
5	Brilliant Yellow S	Diamond Black
	Chrysoin	Azorubin
	Crystal Violet	

Likewise polyvinyl alcohol also has the capacity for carrying up to 10% of its own weight of any of the following desensitizing dyes:

	Phenosafranin	Pinakryptol Green
	Nile Blue	Pinakryptol Yellow
	Aurantia	Jute Red
15	Basic Scarlet N	Thio Flavin T

All of the above mentioned dyes are listed in the recognized tables, such as those published by Gustav Schultz, Berlin, 1923.

Although it is believed that it is obvious how the present invention may be used in preparing photographic material, reference is made to the drawing in which 1 designates a transparent support such as cellulosic film or glass on which there is placed a coating 2 of sensitized photographic emulsion. On the rear surface of the support 1 there is placed the dye-carrying layer 3 which prevents halation and which may also be used to carry a dye permitting a process of daylight developing. This layer may have incorporated therein, amounts previously specified of any one of the mentioned anti-halation dyes or the anti-halation colloidal manganese oxide or any one of the desensitizing dyes.

What we claim is:

1. An article of manufacture comprising a transparent support, a coating of sensitized photographic material on one side of said support, and a layer coated on the other side of said support formed of polyvinyl alcohol and a material absorptive of the light rays to which the photographic coating is sensitized.

2. An article of manufacture, comprising a transparent support, a coating of sensitized photographic material mounted on one side of said support, and a dye-carrying layer comprising polyvinyl alcohol mounted on the other side of said support.

3. An article of manufacture, comprising a transparent support, a coating of sensitized photographic material mounted on one side of said support, and a coating for the other side of said support comprising polyvinyl alcohol and including an anti-halation dye in amounts up to 10% of the weight of the dry polyvinyl alcohol.

4. An article of manufacture comprising a transparent support, a sensitized photographic coating mounted on one side of said support and a layer mounted on the other side of said support formed of polyvinyl

alcohol carrying an anti-halation dye and a desensitizing dye.

5. An article of manufacture comprising a transparent support, a sensitized photographic layer on one surface thereof and, on the other surface thereof, a dye carrying layer comprising polyvinyl alcohol, the dye content of said layer having the properties of absorbing light rays to which the photographic layer is sensitive and, when dissolved, of desensitizing said photographic layer.

Signed at Rochester, New York, this 25th day of February, 1929.

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