

- [54] **SPACER LAYER FOR DYE DIFFUSION
TRANSFER FILM**
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- [58] **Field of Search**..... **96/3, 29 D, 77, 76 R**

[56] **References Cited**

UNITED STATES PATENTS		
3,362,821	1/1968	Land..... 96/3
3,421,892	1/1969	Taylor..... 96/3
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3,615,422	10/1971	Haberlin..... 96/29 D
3,625,685	12/1971	Autges et al..... 96/3
3,748,129	7/1973	Autges et al..... 96/3
3,785,815	1/1974	Autges et al..... 96/3

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[57] **ABSTRACT**

Novel photographic products for use in color diffusion transfer systems employing a neutralizing layer for lowering the environmental pH after application of an aqueous alkaline processing fluid and a “timing” or spacer layer so disposed with respect to the neutralizing layer that the processing fluid must first diffuse through the spacer layer before contacting the neutralizing layer, the essence of the invention being employing as the spacer layer comprising, as a continuous phase, the coalesced essence of an aqueous film-forming synthetic polymer dispersion which is substantially impermeable to the processing fluid and a discontinuous phase consisting essentially of polyvinyl alcohol.

18 Claims, No Drawings

SPACER LAYER FOR DYE DIFFUSION TRANSFER FILM

BACKGROUND OF THE INVENTION

Various diffusion transfer systems for forming color images have heretofore been disclosed in the art. Generally speaking, transfer image formation is obtained by exposing a photosensitive element or negative component comprising at least one light-sensitive silver halide layer having associated therewith a dye image-providing material (which may be a complete dye or a dye intermediate, e.g., a color coupler) to form a developable image; thereafter developing this image by applying an aqueous alkaline processing fluid; forming, as a function of this development, an imagewise distribution of soluble and diffusible dye image-providing material; and transferring this imagewise distribution, at least in part, by diffusion, to a superposed image-receiving element or positive component including a dyeable stratum to impart thereto a color transfer image, usually a positive image.

The dye image-providing materials which may be employed in such processes generally may be characterized as being (1) either initially soluble or diffusible in the processing composition but which are selectively rendered non-diffusible in an imagewise pattern as a function of development; or (2) initially insoluble or non-diffusible in the processing composition but which are selectively rendered diffusible in an imagewise pattern as a function of development. Numerous examples of both types of image-providing materials are recited in the patent literature. A particularly useful class of such materials are dye developers (dyes which are also silver halide developing agents) described in U.S. Pat. No. 2,983,606 and many other patents.

In any of these systems, multicolor images may be obtained by employing a photosensitive element or negative component including at least two selectively sensitized silver halide layers, each having associated therewith a dye image-providing material exhibiting desired spectral absorption characteristics. The most commonly employed elements of this type are the so-called tripack structures employing a blue-, a green- and a red-sensitive silver halide layer having associated therewith, respectively, a yellow, a magenta and a cyan dye image-providing material.

The negative and positive components may be initially separate elements which are brought into superposition during development and thereafter retained together or separated to provide the desired transfer image (e.g., as described in the aforementioned U.S. Pat. No. 2,983,606); or they may be contained together as a unitary structure, e.g., the so-called integral negative-positive film units wherein the respective components are retained together prior to exposure and following image-formation. In the latter systems wherein the two are retained together, a reflecting layer, usually a white pigment such as titanium dioxide, is provided between the respective components, either as a preformed layer or during development, so as to mask effectively the negative component and to provide the desired background for viewing the image formed in the positive component as a reflection print. The respective components in such integral film units may be contained on a single dimensionally stable layer or support or they may be confined between a pair of such supports. Of course, any support associated with the

positive component should be transparent to permit viewing of the transfer image.

As examples of such integral negative-positive film units for preparing color transfer images viewable without separation, mention may be made of those described in U.S. Pat. Nos. 3,415,644; 3,415,645; 3,415,646; 3,473,925; 3,550,515; 3,573,042; 3,573,043; 3,573,044; 3,576,625; 3,578,540; 3,589,904; 3,594,164; 3,594,165; 3,607,285; 3,615,421; 3,615,436; 3,615,539; 3,615,540; 3,619,192; 3,619,193; 3,621,768; 3,647,437; 3,652,281; 3,652,282; 3,672,890; 3,679,409; 3,689,262; 3,690,879; and others.

In the photographic systems described above employing an aqueous alkaline processing composition, it is well known to employ an acid-containing layer (neutralizing layer) to lower the environmental pH following substantial dye transfer. Employment of a neutralizing layer, and specific materials useful therein are described in U.S. Pat. Nos. 3,362,819 and 3,362,821 as well as in many of the aforementioned patents. In those systems employing a neutralizing layer, it is common to dispose an inert interlayer or spacer layer (sometimes referred to in the patent literature as a "timing layer") between the applied processing fluid and the neutralizing layer in order to control the pH reduction, e.g., to "time" control the diffusion to the neutralizing layer and subsequent pH reduction. Suitable "timer" layers are described in the aforementioned U.S. Pat. No. 3,362,819 and many others.

The copending application of Avtges et al., Ser. No. 246,779 filed Apr. 24, 1972, now U.S. Pat. No. 3,785,815 describes and claims timing layers comprising, as a continuous phase, the coalesced essence of an aqueous film-forming synthetic polymer dispersion which is substantially impermeable to the aqueous alkaline processing fluid, e.g., a latex, and a discontinuous phase comprising a material sometimes referred to as a "permeator" which is permeable to the processing fluid.

Preferred latices disclosed in that application include a 60-38-2 copolymer of methylmethacrylate, butylacrylate and acrylic acid, respectively; a 60-30-4-6 copolymer of butylacrylate, diacetone acrylamide, styrene and methacrylic acid, respectively; and a 60-30-4-6-1.5-0.5 copolymer of butylacrylate, diacetone acrylamide, styrene, methacrylic acid, 2-sulfoethyl methacrylate and divinyl benzene, respectively, all proportion designations being on a dry weight basis. Among other useful latices, mention may be made of polyvinyl chloride, vinyl chloride-vinyl acetate copolymers, acrylic polymers and copolymers as, for example, a terpolymer of butylacrylate, methylmethacrylate and small amounts of acrylic acid or methacrylic acid, and innumerable other latices which will readily come to mind to one of ordinary skill in polymer chemistry. An extensive compilation of appropriate latices which may be utilized herein will be found in U.S. Pat. No. 2,795,564.

Useful permeators disclosed in that application include isopropyl cellulose, preferably containing about 1.3 isopropyl groups per cellulosic monomer unit, hydroxypropyl cellulose, acrylonitrile acrylic acid copolymers, methacrylate acrylic acid copolymers, preferably containing about 3% by weight acrylic acid, poly-N-ethyl acrylamide, polyacrylamide, polyethylene oxide, terpolymers of N-ethylacrylamide, methylacrylamide

and acrylamide, copolymers of N-ethylacrylamide and 2-vinyl pyridine, copolymers of N-isopropyl acrylamide and N-vinyl pyrrolidone, copolymers of N-isopropyl acrylamide and dimethylaminoethyl acrylate, etc. Other useful permeators include graft copolymers of the type disclosed in the aforementioned U.S. Pat. No. 3,575,701 and which are disclosed in this patent as providing useful timing layers.

As is described in that application, the coalesced latex portion of the timing layer is denoted as the "continuous phase," while the permeator component is denoted as the "discontinuous phase." Such terminology connotes an admixture of the two components with the former component being present in greater concentration than the latter which may, if desired, be present in the form of continuous channels, etc., throughout the coalesced latex. The ratio of latex to permeator employed may vary in accordance with the particular rate or degree of diffusibility desired in the photographic system in which it is employed. It will be appreciated that as the concentration of permeator increases, the permeability of the layer also increases. A typical latex/permeator timing layer of this invention may contain a ratio of latex to permeator on the order of from about 19:1 to about 99:1, a typical ratio being on the order of about 40:1. However, the selection of the particular ratios of ingredients to be employed in a given film unit will be readily apparent to those skilled in the art and the ratios given above are accordingly by way of illustration only.

Generally speaking, the timing layers of this invention possess a total thickness such that, if the layer consisted only of the coalesced latex, it would be impermeable to the alkaline processing fluid. It may, for example, be on the order of 0.1 to 0.7 mil thick and may, for example, contain on the order of 300-1700 mgs. of solids/sq. ft. of surface area. Where employed in systems wherein the photosensitive strata are to be exposed and/or the resulting image is to be viewed through this layer, it is desirable that the layer, like any other layers through which exposure is to be made and/or the image viewed, should be as thin as possible. In such instances, it will also be appreciated that the timing layer of this invention should also be as clear or transparent to visible light as possible. To achieve such clarity, it is important that the latex and permeator be compatible, since incompatibility will result in a film which may not be as transparent or clear as desired and is not macroscopically homogenous. With various latex/permeator mixtures, it will be appreciated that various degrees of compatibility may be achieved. The indicativeness of such compatibility may be appreciated by the clarity of the ultimate film produced — light scatter being a concomitant result of the absence of compatibility between the latex and the permeator used therewith, and being further indicative of the degree of macromolecular nonhomogeneity. It will therefore be recognized that the discontinuities provided within the coalesced latex film by the permeator must, in such instances, be sufficiently small so as to obviate the induction of scattering of light incident thereon. The layer may be considered to be homogeneous if the coalesced latex contains a permeator which is distributed compatibly throughout the coalesced latex film so as not to produce scattering of incident light. In absolute terms, that is, on the microscopic level, the layer will generally consist essen-

tially of the coalesced latex with a multiplicity of small localized areas comprising the permeator.

SUMMARY OF THE INVENTION

The present invention is directed to timing layers of the type described in the aforementioned copending application Ser. No. 246,779 and photographic systems of the type previously described employing such timing layers, the essence of the invention being employing polyvinyl alcohol as the permeator to achieve certain advantages to be described hereinafter.

DETAILED DESCRIPTION OF THE INVENTION

In the photographic systems wherein the positive component is a separate element (as distinguished from integral negative-positive film units) including a neutralizing layer, this component or image-receiving element generally comprises a suitable support which may be opaque or transparent, e.g., a paper base support having the desired neutralizing layer, e.g., an acid layer of the type described in U.S. Pat. No. 3,362,819, a timing layer comprising a latex of the type described in the aforementioned copending application Ser. No. 246,779 with polyvinyl alcohol as the permeator; and a dyeable stratum such as any of those heretofore known, e.g., of the type described in U.S. Pat. No. 3,148,061 comprising polyvinyl alcohol and poly-4-vinyl pyridine. Other reagents such as stabilizers, development restrainers, UV light absorbers and the like may be and frequently are also present and the presence or absence of such additional reagents performing specific desired functions per se comprises no part of this invention.

A typical image-receiving element of the foregoing description may, for example, comprise a paper base support having thereon, in order, a layer about 0.8 mil thick comprising the partial butyl ester of polyethylene/maleic anhydride copolymer prepared in accordance with Example 10 of U.S. Pat. No. 3,362,819; a timing layer about 0.3 mil thick containing about a 40:1 ratio of a 60-30-4-6 copolymer of butylacrylate, diacetone acrylamide, styrene and methacrylic acid and polyvinyl alcohol, e.g., "Elvanol 72-60" (trade name of E. I. duPont de Nemours & Co. for high viscosity, 100% hydrolyzed polyvinyl alcohol); and a dyeable stratum or receiving layer about 0.4 mil thick comprising a 2:1 mixture, by weight, of polyvinyl alcohol and poly-4-vinylpyridine.

In lieu of having the neutralizing and timing layers associated with the positive component, as in the foregoing example, they may be disposed in the negative component, as disclosed in U.S. Pat. No. 3,362,821, or in both.

The preferred integral negative-positive film units contemplated by this invention are of the type disclosed in U.S. Pat. No. 3,415,644 wherein the essential layers of the negative and positive components are confined between a pair of support members, the one associated with the negative component being opaque and the one associated with the positive component being transparent for exposure of the film unit and subsequent viewing of the resulting color image by reflected light. In essence, such a configuration for forming multi-color images may comprise, in order, a transparent support, a neutralizing layer, a timing layer of this invention, a dyeable stratum, a blue-sensitive silver halide emulsion layer having a yellow dye image-providing

material associated therewith in the same or in an adjacent layer, a green-sensitive silver halide emulsion layer having a magenta dye image-providing material associated therewith in the same or in an adjacent layer, a red-sensitive silver halide emulsion layer having a cyan dye image-providing material associated therewith in the same or in an adjacent layer, and an opaque support. Preferably, an interlayer or spacer layer is disposed between each set of silver halide and associated dye image-providing material, e.g., an interlayer of the type described in U.S. Pat. No. 3,625,685 comprising a latex and a permeator. In accordance with the present invention, the permeator so employed in these negative interlayers may be polyvinyl alcohol as in the timing layers of this invention. The negative and positive components are preferably prelaminated in accordance with the precedures described and claimed in U.S. Pat. Nos. 3,652,281 or 3,652,282 in such a manner that delamination occurs at this interface upon application of an aqueous alkaline processing fluid to permit development and transfer image formation, relamination being accomplished by the presence of a viscous reagent in the processing fluid to maintain the integrity of the final print. In addition to the essential photographic reagents, the processing composition also contains a reflecting agent, e.g., a dispersion of titanium dioxide, so that the thus applied layer masks effectively the negative component (including developed silver and any associated dye image-providing material) and provides the requisite background for viewing the color transfer image by reflected light, without separation, through the transparent support. Preferably, the processing composition also contains additional opacifying agent which in combination with the opaque support provides a "lighttight envelope" sandwiching the negative component so that the film unit may be developed in the light. This lastmentioned concept is described in many of the aforementioned patents, a preferred system being that described in U.S. Pat. No. 3,647,437 wherein the processing composition includes one or more optical filter agents (sometimes called "indicator dyes") which are highly colored at the alkaline pH of the processing fluid but which are "cleared" or rendered substantially transparent at a lower pH following neutralization so as not to interfere with viewing of the transfer image.

An illustrative integral negative-positive film unit of this description may be prepared, for example, by coating, in succession, on a gelatin subbed 4 mil. opaque polyethylene terephthalate film base, the following layers:

1. a layer of cyan dye developer dispersed in gelatin and coated at a coverage of about 75 mgs./ft.² of dye and about 80 mgs./ft.² of gelatin;
2. a red-sensitive gelatino silver iodobromide emulsion coated at a coverage of about 140 mgs./ft.² of silver and about 70 mgs./ft.² of gelatin;
3. a layer of a 60-30-4-6 copolymer of butylacrylate, diacetone acrylamide, styrene and methacrylic acid and polyacrylamide coated at a coverage of about 150 mgs./ft.² of the copolymer and about 5 mgs./ft.² of polyacrylamide;
4. a layer of magenta dye developer dispersed in gelatin and coated at a coverage of about 75 mgs./ft.² of dye and about 67 mgs./ft.² of gelatin;

5. a green-sensitive gelatino silver iodobromide emulsion coated at a coverage of about 80 mgs./ft.² of silver and about 40 mgs./ft.² of gelatin;

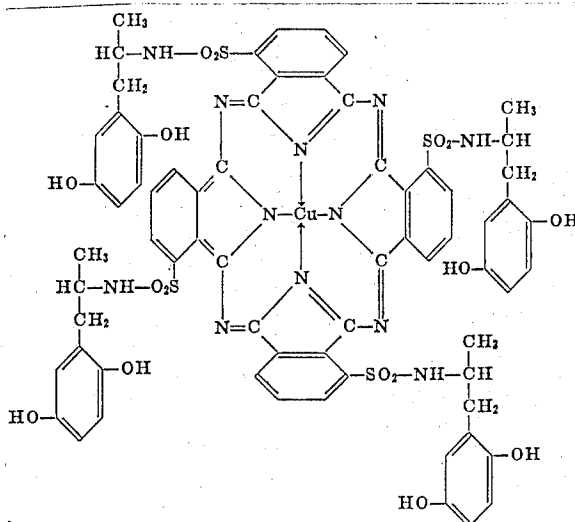
6. a layer containing the copolymer referred to above in layer 3 and polyacrylamide coated at a coverage of about 100 mgs./ft.² of copolymer and about 12 mgs./ft.² of polyacrylamide;

7. a layer of yellow dye developer dispersed in gelatin and coated at a coverage of about 83 mgs./ft.² of dye and about 64 mgs./ft.² of gelatin;

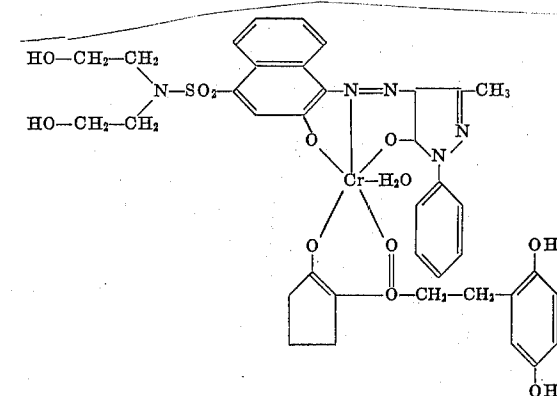
8. a blue-sensitive gelatino silver iodobromide emulsion layer including the auxiliary developer 4'-methylphenyl hydroquinone coated at a coverage of about 120 mgs./ft.² of silver, about 60 mgs./ft.² of gelatin and about 30 mgs./ft.² of auxiliary developer; and

9. a layer of gelatin coated at a coverage of about 50 mgs./ft.² of gelatin.

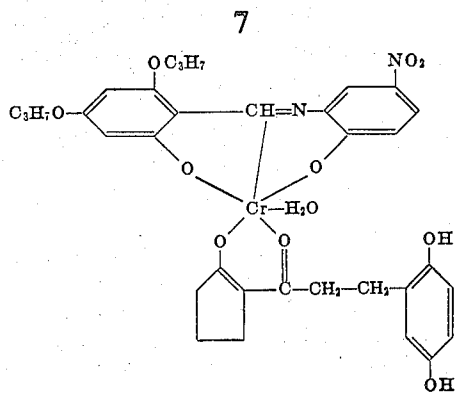
The three dye developers employed above may be the following:



a cyan dye developer;



a magenta dye developer; and



a yellow dye developer.

Then a transparent 4 mil. polyethylene terephthalate film base may be coated, in succession, with the following illustrative layers:

1. the partial butyl ester of polyethylene/maleic anhydride copolymer prepared by refluxing, for 14 hours, 300 grams of high viscosity poly-(ethylene/maleic anhydride), 140 grams of n-butyl alcohol and 1 cc. of 85 percent phosphoric acid to provide a polymeric acid layer at a coverage of about 2500 mgs./ft.²;

2. a timing layer containing about a 40:1 ratio of a 60-30-4-6 copolymer of butylacrylate, diacetone acrylamide, styrene and methacrylic acid and polyvinyl alcohol at a coverage of about 500 mgs./ft.²; and

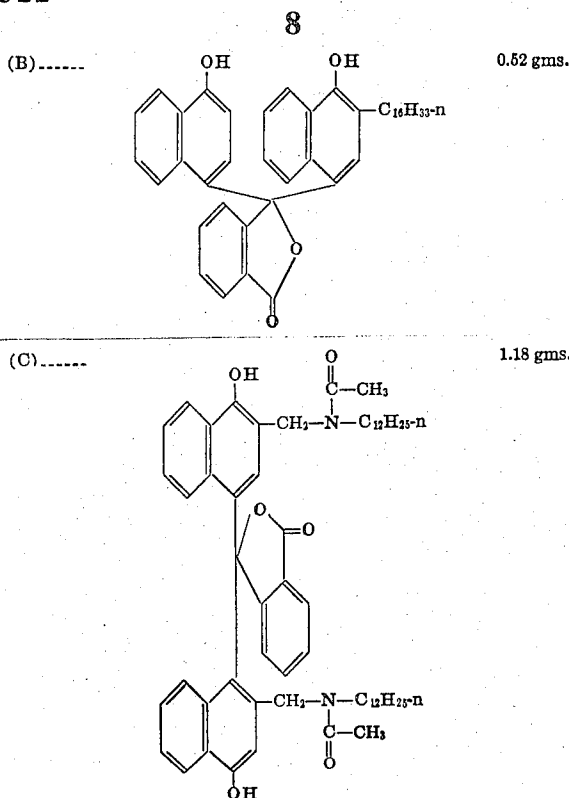
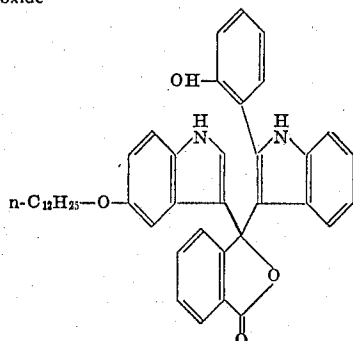
3. a 2:1 mixture, by weight, of polyvinyl alcohol and poly-4-vinylpyridine, at a coverage of about 400 mgs./ft.² to provide a polymeric image-receiving layer.

The two components may then be laminated together to provide the desired integral film unit.

A rupturable container comprising an outer layer of lead foil and an inner liner or layer of polyvinyl chloride retaining an aqueous alkaline processing solution may then be fixedly mounted on the leading edge of each of the laminates, by pressure-sensitive tapes, interconnecting the respective container and laminates so that, upon application of compressive pressure to the container to rupture the container's marginal seal, its contents may be distributed between the dyeable stratum (layer 3 of the positive component) and the gelatin layer (layer 9) of the negative component.

An illustrative processing composition to be employed in the rupturable container may comprise the following properties of ingredients:

Water	100 cc.
Potassium hydroxide	11.2 gms.
Hydroxyethyl cellulose (high viscosity) [commercially available from Hercules Powder Co., Wilmington, Delaware, under the trade name Natrasol 250]	3.4 gms.
N-phenethyl- α -picolinium bromide	2.7 gms.
Benzotriazole	1.15 gms.
Titanium dioxide	50.0 gms.
(A)-----	2.08 gms.



This film unit may then be exposed in known manner to form a developable image and the thus exposed element may then be developed by applying compressive pressure to the rupturable container in order to distribute the aqueous alkaline processing composition, thereby forming a multicolor transfer image which is viewable through the transparent polyethylene terephthalate film base as a positive reflection print.

The use of polyvinyl alcohol as the permeator in lieu of permeators such as polyacrylamide disclosed in the aforementioned copending application Ser. No. 246,779, provides certain significant advantages, chief of which are from the standpoint of preparation of the layers, especially commercial production.

The layers of this invention may be prepared simply and efficiently by admixing the polyvinyl alcohol, latex and any other solids together in the desired amounts in a "single pot" process. As distinguished from this simple procedure, permeators such as polyacrylamide cannot be so admixed and the polyacrylamide must first be put into solution. This takes up to 24 hours and requires storage in drums for subsequent use in commercial production.

In addition to the slow solution and storage problems with such permeators, variances in the amount of permeator solids in these drums of permeator solution makes it difficult to obtain permeator-latex layers having the precise ratio of permeator to latex so that the photographic usage of the film units is constant and reproducible. This latter problem is of course not insurmountable but requires quality control analyses and tests which are not the most desirable procedure from the standpoint of large-scale commercial production. All of these problems are solved simply and efficiently by employment of polyvinyl alcohol.

In addition, quite surprisingly the use of polyvinyl alcohol has given evidence of improved photographic results. Specifically, it gives evidence of better perform-

ance during development at cold temperatures while maintaining the same performance at room temperatures and higher. Thus, polyvinyl alcohol gives evidence of better performance over the temperature scale from hot to cold in terms of "time" controlling the diffusion of alkali and subsequent pH reduction within the prescribed time sequence in the development process.

As will be appreciated by those skilled in the art, the permeator and latex forming the layer should be compatible in the sense that they do not interact to absorb and/or reflect light. It has been found that polyvinyl alcohol will so interact when alkali is added to adjust the pH, e.g., at pH 7, to produce a haze. In systems such as the illustrative integral negative-positive film unit wherein viewing is effected through this layer, this of course is undesirable and this neutralization step heretofore suggested should be obviated. For example, without neutralization, e.g., at pH 4.5, the layer is perfectly clear and performs its desired function in the prescribed manner.

The haze resulting from neutralization of course is not a problem in systems wherein the timing and neutralizing layers are so disposed in the product, e.g., in the negative component, that they are not in the path of viewing light. Moreover, it does not appear to be a problem in those systems wherein the layers are so disposed in the image-receiving element which is separated after image formation. While the exact reason is not entirely clear, the haze problem appears to be a surface phenomenon which is obviated in these systems.

In any event, for purposes of clarity, the spacer layer of this invention may, if desired, include alkali to adjust the pH, it being understood that if this pH adjustment causes undesirable haze, it should not be done. In either case, the spacer layers of this invention will provide the advantages noted above.

Since certain changes may be made in the above product and process without departing from the scope of the invention herein involved, it is intended that all matter contained in the above description shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. In a photographic product comprising a photosensitive element including at least one light-sensitive silver halide layer having a dye image-providing material associated therewith and an image receiving element including a dyeable stratum adapted for receiving a dye image pattern and a neutralizing system integrated with said photosensitive system or said image receiving element for lowering the pH of an aqueous alkaline processing composition; said neutralizing system including a neutralizing layer and a spacer layer arranged on a support and wherein said spacer layer is disposed with respect to said neutralizing layer so that said processing fluid must first diffuse through the spacer layer before contacting the neutralizing layer;

the improvement wherein said spacer layer comprises as a continuous phase a coalesced aqueous film-forming synthetic polymer dispersion which is substantially impervious to said processing fluid and a discontinuous phase comprising polyvinyl alcohol.

2. A product as defined in claim 1 wherein said neutralizing layer and said spacer layer are disposed between said support and said photosensitive system.

3. A product as defined in claim 1 wherein said sup-

port is transparent and said spacer is disposed between said dyeable stratum and said neutralizing layer and said photosensitive system is disposed on the side of said dyeable stratum opposed from said spacer and neutralizing layers.

4. A product as defined in claim 1 wherein said spacer layer is disposed between said dyeable stratum and said neutralizing layer.

5. In an integral negative-positive film unit including a negative component comprising at least one light-sensitive silver halide layer having a dye image-providing material associated therewith, a positive component including at least a dyeable stratum, means for applying a reflecting layer between said positive and negative components in an amount sufficient upon development of said film unit to mask effectively said negative component and to provide a background for viewing a color image imparted to said dyeable stratum of said positive component by reflected light by applying an aqueous alkaline processing fluid to said film unit after exposure thereof, said film unit further including a neutralizing layer for lowering the environmental pH subsequent to application of said alkaline processing fluid and a spacer layer so disposed with respect to said neutralizing layer that said processing fluid must first diffuse through said spacer layer before contacting said neutralizing layer;

the improvement wherein said spacer layer comprises as a continuous phase a coalesced aqueous film-forming synthetic polymer dispersion which is substantially impermeable to said processing fluid and a discontinuous phase comprising polyvinyl alcohol.

6. A film unit as defined in claim 5 wherein said dye image-providing materials are initially soluble or diffusible in said aqueous alkaline processing fluid but are selectively rendered non-diffusible in an imagewise pattern as a function of development.

7. A film unit as defined in claim 5 including means for applying said aqueous alkaline processing fluid to develop said film unit.

8. A film unit as defined in claim 5 wherein said negative and positive components are confined between a pair of support members at least the support member associated with said positive component being transparent.

9. A film unit as defined in claim 5 wherein said positive and negative components are carried on a transparent support member associated with said positive component.

10. A film unit as defined in claim 5 wherein said means for applying a reflecting layer comprises a layer of a white pigment disposed in a layer between said positive and negative components.

11. A film unit as defined in claim 5 including at least two selectively sensitized silver halide layers, each having associated therewith a dye image-providing material, and a layer intermediate said silver halide layers comprising as a continuous phase the coalesced essence of an aqueous film-forming synthetic polymer dispersion which is substantially impermeable to said processing fluid and a discontinuous phase comprising polyvinyl alcohol.

12. A film unit as defined in claim 11 wherein said layer intermediate said silver halide layers and said spacer layer are substantially the same.

13. In a film unit including a blue-sensitive, a green-

sensitive and a red-sensitive silver halide layer having associated therewith, respectively, a yellow, magenta and a cyan dye image-providing material, a neutralizing layer for lowering the environmental pH after application of an aqueous alkaline processing fluid to develop said film unit, and a spacer layer so disposed in said film unit with respect to said neutralizing layer that said alkaline processing fluid must diffuse through said spacer layer before contacting said neutralizing layer;

the improvement wherein said spacer layer comprises as a continuous phase a coalesced aqueous film-forming synthetic polymer dispersion which is substantially impermeable to said processing fluid and a discontinuous phase comprising polyvinyl alcohol.

14. In a photosensitive element which comprises, in combination:

a. a support layer;

b. at least two selectively sensitized silver halide layers each having associated therewith a dye image-forming material of predetermined color; and

c. a layer intermediate said silver halide layers comprising, as a continuous phase, a coalesced aqueous film-forming synthetic polymer dispersion adapted to provide a dye image-forming material impermeable polymeric layer upon coalescence and, as a discontinuous phase, a processing composition permeable material adapted to render said intermediate layer permeable to processing composition solubilized dye image-forming material subsequent to contact of said layer with said processing composition;

the improvement wherein said permeable material of said discontinuous phase comprises polyvinyl alcohol.

15. A film unit as defined in claim 14 including a blue-sensitive, a green-sensitive and a red-sensitive silver halide layer having associated therewith, respectively, a yellow, a magenta and a cyan dye image-providing material, at least one of said silver halide

layer and associated dye image-providing material being separated from the next adjacent silver halide layer and associated dye image-providing material by one of said intermediate layers.

16. In a photographic process wherein a photographic product comprising a photosensitive element including at least one light-sensitive silver halide layer having a dye image-providing material associated therewith is exposed to form a developable image and thereafter an aqueous alkaline processing fluid is applied between the thus exposed photosensitive element and a superposed image-receiving element to develop said image and to impart to said receiving element a color diffusion transfer image and said photographic product includes a neutralizing system integrated with said photosensitive element or said image receiving element; said neutralizing system including a neutralizing layer and a spacer layer arranged on a support and wherein said spacer layer is disposed with respect to said neutralizing layer so that said processing fluid must first diffuse through the spacer layer before contacting the neutralizing layer;

the improvement wherein said spacer layer comprises as a continuous phase a coalesced aqueous film-forming synthetic polymer dispersion which is substantially impervious to said processing fluid and a discontinuous phase comprising polyvinyl alcohol.

17. A process as defined in claim 16 wherein said photosensitive and image-receiving elements are separate during photoexposure.

18. In a photographic process wherein a film unit is exposed and thereafter developed by applying to the thus exposed element an aqueous alkaline processing fluid to provide a composite print viewable, without separation, as a reflection print;

the improvement comprising employing as said film unit a film unit as defined in claim 5.

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