

[54] **SILVER HALIDE LIGHT-SENSITIVE  
COLOR PHOTOGRAPHIC MATERIAL  
CONTAINING COLOR COUPLER MASKING  
COMPOUND AND DEVELOPMENT  
INHIBITOR RELEASING COMPOUND**

[75] Inventors: **Helmut Mäder,**  
Odenthal-Hahnenberg; **Rigobert  
Otto,** Leverkusen; **Paul Marx,**  
Cologne; **Walter Püschel,**  
Leverkusen, all of Germany

[73] Assignee: **Agfa-Gevaert Aktiengesellschaft,**  
Leverkusen, Germany

[22] Filed: **Nov. 29, 1973**

[21] Appl. No.: **419,996**

## Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 205,282, Dec. 6,  
1971, abandoned.

## Foreign Application Priority Data

Dec. 8, 1970 Germany..... 2060196

[52] U.S. Cl..... 96/100, 96/9

[51] Int. Cl..... G03c 1/40  
[58] Field of Search..... 96/9, 100

## [56] References Cited

### UNITED STATES PATENTS

|           |        |                     |        |
|-----------|--------|---------------------|--------|
| 3,148,062 | 9/1964 | Whitmore et al..... | 96/9   |
| 3,186,840 | 6/1965 | Puschel et al.....  | 96/100 |
| 3,227,554 | 1/1966 | Barr et al.....     | 96/9   |
| 3,467,520 | 9/1969 | Puschel et al.....  | 96/9   |
| 3,556,796 | 1/1971 | Eynde et al.....    | 96/100 |

Primary Examiner—J. Travis Brown

Attorney, Agent, or Firm—Connolly and Hutz

## [57] ABSTRACT

A colorphotographic material contains, for obtaining improved color reproduction, balanced gradation, improved sharpness and refined color grain, a combination of a colorless color forming coupler (I), a mask former (II) and a DIR-compound (III) that does not contribute towards formation of the image dye. Also the mask former may be one that does not contribute towards formation of the image dye.

**3 Claims, No Drawings**

# **SILVER HALIDE LIGHT-SENSITIVE COLOR PHOTOGRAPHIC MATERIAL CONTAINING COLOR COUPLER MASKING COMPOUND AND DEVELOPMENT INHIBITOR RELEASING COMPOUND**

This application is a continuation-in-part application of U.S. patent application Ser. No. 205,282, filed Dec. 6, 1971, now abandoned.

This invention relates to a light-sensitive color photographic material for producing colored images with improved color reproduction, balanced gradation, improved definition and refined color grain.

It is known that it is possible, using masking techniques, to compensate for the undesirable color side densities of the dyes formed during the chromogenic development of color-photographic multilayer materials. With color-photographic materials, this can be done by using so-called built in masks. Such masks can be produced, for example, during the photographic processing operation, by using masking couplers having an original color that corresponds to the undesirable color side density of the image dyes to be masked. Masking couplers suitable for this purpose generally have the chemical structure of ordinary color couplers, but have at the coupling site a group, generally an arylazo group, which imparts color to the color coupler and which is split off during the reaction with oxidized color developer. Accordingly, color development of an exposed photographic material containing a masking coupler is accompanied by formation from the colored masking coupler of the required image dye, and hence the undesirable color side density of the image dye, depending upon the quantity of silver halide which has become developable by exposure. At the time, however, the original color density of the masking coupler is decreased. The masking effect arises out of the fact that, after development, the unused masking coupler has a gradation which is opposite to that of the undesirable color side density of the image dye.

Other masking processes use colorless compounds which, during the photographic processing operation, for example in an oxidizing bleach bath, form a positive dye image serving as correcting mask for the side density to be masked of the image dye obtained from the color coupler used.

Processes for influencing gradation, for improving definition and for refining the color grain by using special couplers are also known, for example from U.S. Pat. No. 3,227,554 which describes color couplers having, in the coupling position, a substituent, for example a thio-ether group, which exerts a development-inhibiting effect when it is split off during color coupling, whilst a dye is simultaneously formed from the coupler radical. Such couplers are known as "development inhibitor releasing couplers" or *DIR-couplers*.

German Offenlegungsschrift No. 1,547,640 and corresponding U.S. Pat. No. 3,632,345 disclose other compounds which also split off development-inhibiting substances during their reaction with color developer oxidation products, but do not take any part in the creation of the color image through dye formation. These compounds are referred to hereinafter as *DIR-compounds*.

In order to obtain well-defined images with reduced contrast and fogging, and with improved interimage characteristics, there has also been proposed (see German Offenlegungsschrift No. 1,916,531 and corre-

sponding U.S. Pat. No. 3,703,375) a material having in a silver halide emulsion layer particles of a solution of a coupler mixture in a water-in-soluble organic crystalloidal solvent, so-called oil-former, having a boiling point above 175°C. The coupler mixture consists of a colorless coupler, of a colored masking coupler and of a *DIR-coupler*. Unfortunately, it is extremely difficult to prepare a material of this kind, not at least because all three types of coupler used in the emulsion form dyes during reaction with color developer oxidation products and as a result, contribute towards formation of the color image. This makes the choice of suitable couplers extremely difficult because, on the one hand, the couplers have to be adapted to one another in regard to their coupling activity. In general, however, the colored masking coupler and the *DIR-coupler* are less reactive than the colorless coupler from which they are derived so that, in most instances, couplers having different coupler radicals have to be used. On the other hand, it is desirable in order to obtain purer shades, for all the couplers used to give the same dye, in other words to be derived from the same coupler. This, however, due to the different coupling activities, gives rise to difficulties in the kinetic adaptation of the couplers. Accordingly, the number of coupler combinations which can be used for this purpose is severely restricted, with the result that, in most instances, it is necessary to make compromises.

The object of the present invention is to provide a light-sensitive color photographic material which is suitable for the production of colored images having improved color reproduction, balanced gradation, improved definition and refined color grain, but which does not have any of the difficulties of the conventional material as regards structure and selection of the couplers.

It has now been found that a color photographic material comprising at least one light-sensitive silver halide emulsion and associated therewith a combination of a colorless coupler, a masking compound and a *DIR-compound*, can be constructed considerably more simply by using for the formation of the individual colored partial images, preferably only one compound but at most only two compounds taking part in the creation of the dye image through dye formation during photographic processing. Accordingly, a material of this kind contains, in association with each light-sensitive silver halide emulsion layer, preferably only one and at most two color-forming coupling compounds without any loss of advantage in regard to mask formation, gradation balance and grain refinement.

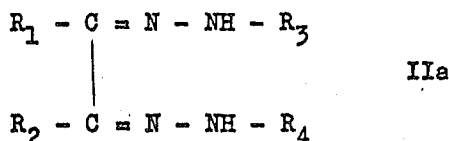
Accordingly, the invention relates to a light-sensitive photographic material comprising at least one light-sensitive silver halide emulsion layer with which there is associated a combination of the following compounds:

- a. a colorless non-diffusing color coupler I which gives a non-diffusing image dye on reaction with color developer oxidation products;
- b. a non-diffusing compound II (mask former) which forms, during photographic processing, a color mask suitable for masking the side density of the image dye; and
- c. a colorless non-diffusing compound III (*DIR-compound*) which splits off a diffusing development-inhibiting substance during the reaction with color developer oxidation products.

The material is distinguished by the fact that the mask former II and/or the DIR-compound III do not contribute towards formation of the image dye during photographic processing.

A material in which neither the mask former II nor the DIR-compound III contributes towards formation of the image dye is of particular advantage.

Mask formers of this kind include, for example, the osazones described in German Auslegeschrift No. 1,083,125 which react with color developer oxidation products to form substantially colorless substances. The residual unreacted osazone forms, in an oxidizing bleach bath which normally follows the color development stage, a yellow to magenta colored positive masking dye image which is suitable for masking the undesirable side densities of the negative image dye formed from the color coupler I simultaneously used. The osazones have the general formula IIa:

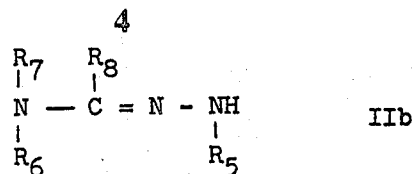


in which

$R_1$  and  $R_2$  each represents hydrogen; alkyl having for example 1 to 20 carbon atoms; aryl such as phenyl or naphthyl; aralkyl such as benzyl; or a heterocyclic radical, for example furyl, thienyl, coumaronyl, thionaphthyl or pyridyl; or  $R_1$  and  $R_2$  can themselves be members of an isocyclic or heterocyclic ring, as in the case, for example, with the dihydrazones of cyclopentane dione or cyclohexane dione or of the series of heterocyclic diketones, for example coumarane dione; and

$R_3$  and  $R_4$  represents aromatic or heterocyclic radicals; for example phenyl or naphthyl radicals in which the hydrogen atoms can be substituted in any way, for example by sulfo, carboxy, alkyl, halogen, cyano, hydroxy, alkoxy or amino groups, which in turn can carry further substituents; or heterocyclic radicals, for example pyridyl, benzimidazolyl or benzthiazolyl.

Other mask formers which do not contribute towards formation of the image dye include the amidrazones disclosed in German Auslegeschrift No. 1,297,470, which in an oxidizing bleach bath give a masking dye image with the residual coupler that is not used during color coupling, accompanied by oxidative coupling. They have the general formula IIb:



in which

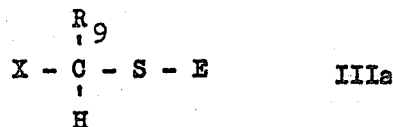
$R_5$  represents the group  $-\text{CONH}_2$  or  $-\text{SO}_2\text{X}$ , in which X represents a hydroxy group, an optionally substituted amino group, an optionally substituted aliphatic hydrocarbon radical, preferably alkyl, or an optionally substituted aryl radical;

$R_6$  and  $R_7$  each represent an alkyl, allyl, aralkyl or aryl radical, or both together with the N atom to which they are attached a heterocyclic ring; and

$R_8$  represents an alkyl, aralkyl or optionally substituted aryl radical, or a heterocyclic group, such as furyl, thienyl or pyridyl.

Heterocyclic amidrazones as described, for example, in British Pat. Specifications No. 975,932 and 993,749 are also suitable for use as mask formers in accordance with the present invention. In compounds of this kind, for example,  $R_7$  and  $R_8$  in formula IIb are closed to form a heterocyclic ring.

DIR-compounds which do not contribute towards formation of the image dye are described, for example, in German Offenlegungsschrift No. 1,547,640. They have the general formula IIIa:



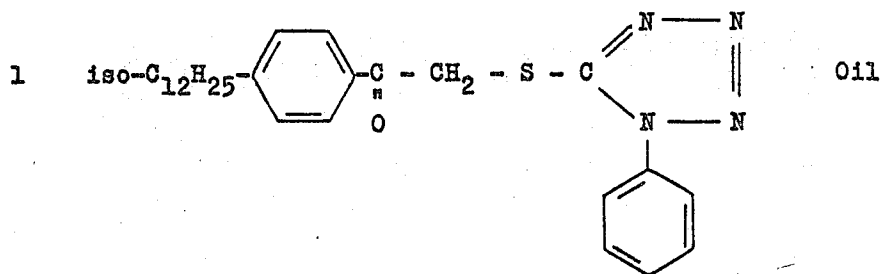
in which

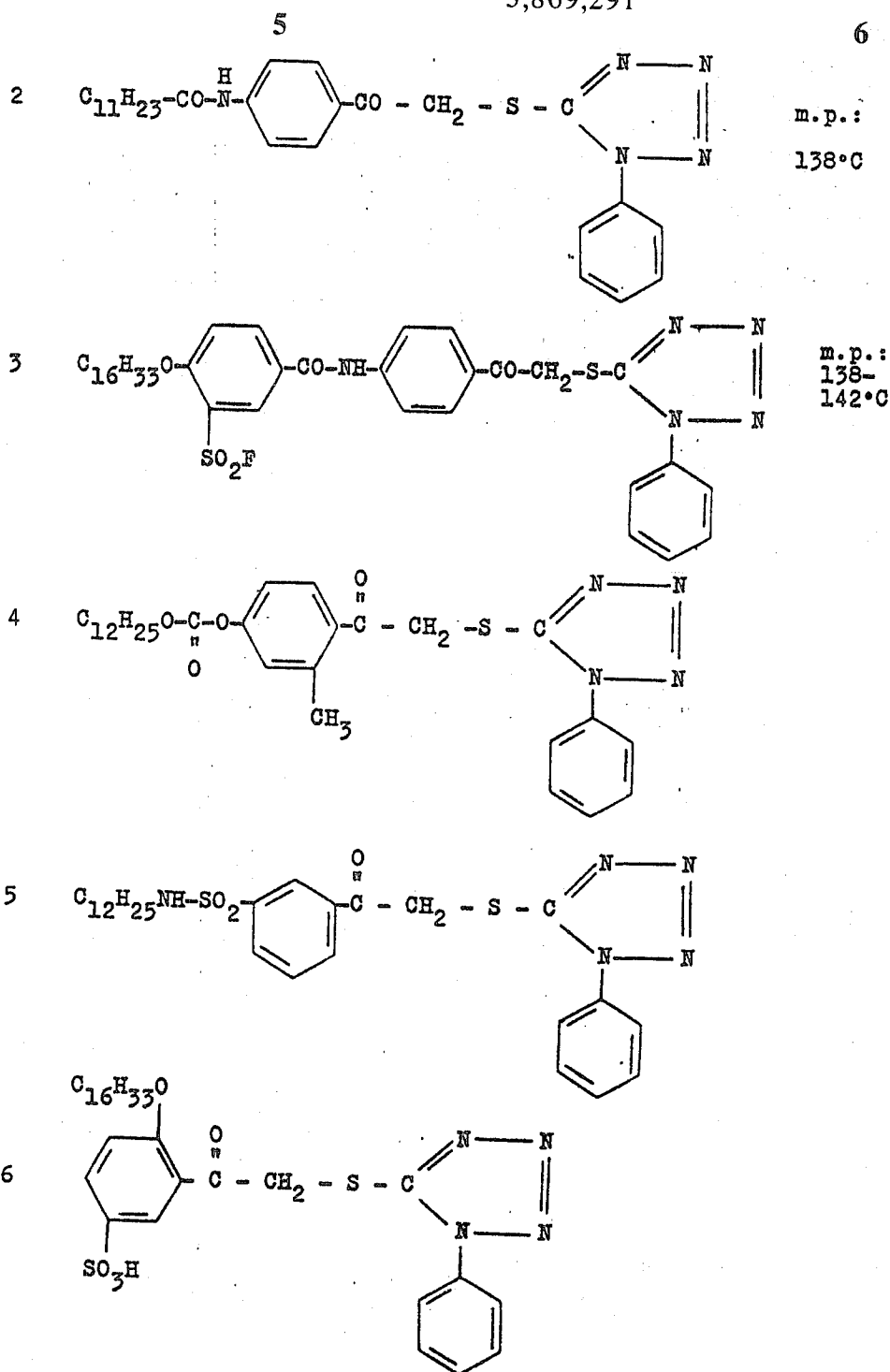
E represents a group which, together with the sulfur atom of the thioether bridge, forms a development-inhibiting mercaptan when split off, for example an isocyclic or heterocyclic aromatic mercaptan; E can, for example, be aryl, for example phenyl such as carboxyphenyl or nitrophenyl, or an aromatic heterocyclic group, especially tetrazole, for example 1-phenyl tetrazole, 1-(nitrophenyl)-tetrazole or 1-naphthyl tetrazole; thiazole, for example benzthiazole or naphthiazole; oxadiazole; thiadiazole; pyrimidine; triazine; or triazole;

$R_9$  represents hydrogen, alkyl, aryl or the group  $-\text{S}-\text{E}$ ;

X represents a group which activates the carbon atom to which  $-\text{X}$ ,  $-\text{R}$  and  $-\text{S}-\text{E}$  are attached, preferably a benzoyl group carrying as diffusion-inhibiting group at least one substituent which contains an alkyl radical with at least 10 carbon atoms.

The following DIR-compounds have proved to be particularly suitable:





The colorless non-diffusing color couplers I are the color couplers normally used in color photography which, during reaction with the oxidation products of the color developer substances, give a cyan, magenta or yellow dye. Phenol or naphthol derivatives, in particular, are used for producing the cyan partial image. The color couplers used to produce the magenta partial image are generally pyrazolone or indazolone derivatives; whilst the yellow couplers are generally derivatives of  $\beta$ -keto-carboxylic acid anilides. Reference is made in this connection to the general article by W. Pelz in "Mitteilungen aus den Forschungslaboratorien der Agfa, Leverkusen-muenchen", Volume III, page 111 (Springer-Verlag, Berlin-Goettingen-Heidelberg, 1961).

In one particular preferred embodiment of the invention, there are associated, with the individual light-

sensitive silver halide emulsion layers, combinations of a colorless color coupler I, a mask former which does not contribute towards formation of the image dye, for example an osazone of formula IIa or an amidrazone of formula IIb; and a colorless DIR-compound which does not contribute towards formation of the image dye, for example an DIR-compound of formula IIIa.

According to the invention, an advantage is even afforded if only one compound of the aforementioned combination, i.e. either the mask former II or the DIR-compound III, does not contribute towards formation of the image dye. In this instance, only two compounds, namely the colorless color coupler I and either the mask former II or the DIR-compound III, need to be adapted to one another in regard to their properties and, more particularly, in regard to the color of the image dyes formed. Accordingly, in another preferred

embodiment, for example, a colorless color coupler I is combined with a colored non-diffusing mask former II which is a colored masking coupler of known type, and a DIR-compound of formula IIIa which does not contribute towards creation of the image dye. In this instance, the image dye is formed from the color coupler I and the colored mask former II. Although there can still be difficulties in adaptation when the image dye is only formed from two components of the combination according to the invention, as in this case from the colorless color coupler and the colored mask former which, as it forms the image dye, is a colored masking coupler, these difficulties can be regarded as obviated, both from the theoretical and from the practical point of view. Colored masking couplers are known to have an azo group in coupling position and are described for example in the U.S. Pat. No. 3,703,375 mentioned hereinbefore. Any suitable azo chromophoric group which splits off when the coupler is contacted with oxidized primary aromatic amine developing agent, can be utilized in the practice of this invention. For most practical purposes the colored masking couplers are selected from 5-pyrazolone couplers and naphthole couplers both having an azo group in coupling position. Such colored couplers and the techniques of using them are described for example in the British Pat. Specification No. 1,184,995 and the corresponding U.S. Pat. No. 3,671,257; in the British Pat. Specification No. 1,191,801; in the British Pat. Specification No. 1,201,003 and the corresponding U.S. Pat. No. 3,615,225; in the German patent application No. p 19 44 441.8 and the corresponding British Pat. Specification No. 1,322,073; in the German patent application No. P 19 62 606.7 and the corresponding British Pat. Specification No. 1,339,736; and in the German patent application No. P 20 24 186.5 and the corresponding British Pat. Specification No. 1,307,482.

On the other hand, it is possible to combine the colorless coupler I with a mask former of formula IIa or IIb, which does not contribute towards formation of the image dye, and with a conventional DIR-coupler III which takes part in formation of the image dye.

The compounds are added to the casting solutions for the individual photographic layers, for example for a light-sensitive silver halide emulsion layer or for a non-light-sensitive binder layer adjacent thereto. The processes used for this purpose are known. Depending, for example, upon their solubility properties, the substances can be added to the casting solutions either in the form of aqueous alkaline solutions, optionally containing water-soluble organic solvents, or alternatively, they can be dispersed in the casting solutions in solution in low-boiling organic solvents such as ethyl acetate or methylene chloride, optionally in conjunction with high-boiling water-insoluble crystalline solvents or so-called oil-formers as for example di-n-butylphthalate or tricresylphosphate. The three components can be added together, for example in the form of a common solution, or alternatively, the individual components can be added as separate solutions to the casting solutions for the layers. The concentrations of the individual components can be varied within wide limits. It is not possible to draw up any general rule for the quantitative ratios to one another of the individual components, because these ratios are governed by the type and, more particularly, by the reactivity of the individual components selected. The optimum concentrations for each combination can readily be deter-

mined by the expert. In general, the colorless color coupler is used in a quantity of from 3 to 100 g, preferably from 20 to 60 g; the mask former can also be used in a quantity of from 3 to 100 g, preferably from 20 to 60 g; and the DIR-compound can be used in a quantity of from 3 to 30 g, preferably from 3 to 10 g, per mole of silver halide.

The material according to the invention is generally a negative-type multiple-layer recording material containing at least three light-sensitive silver halide emulsion layers of which one is sensitive to red light, another to green light and a third to blue light. At least one of these three light-sensitive layers, preferably the red-sensitive and/or green-sensitive silver halide emulsion layer, has associated with it a combination according to the invention of colorless couplers I, mask former II and DIR-compound III. In the context of the invention, the expression "association" means that the combination according to the invention is in a close spatial relationship to the particular silver halide emulsion. Thus, the combination of colorless coupler, mask former and DIR-compound can be accommodated in the same layer with the sensitized silver halide emulsion. It is also possible, however, to accommodate the silver halide emulsion and the associated combination in immediately adjacent layers; the combination can be accommodated in the layer above the silver halide emulsion layer and also in the layer beneath it. In addition, it is pointed out that the individual components of a combination do not necessarily have to be present in the same layer.

In one particular embodiment, for example, the silver halide can also be incorporated into the layer together with the associated combination in the form of so-called microcapsules. In this embodiment, two or more differently sensitized light-sensitive silver halide emulsions and the corresponding combinations can also be combined in a single layer in the form of a so-called mixed grain emulsion, as described, for example, in U.S. Pat. No. 2,698,794.

The conventional silver halide emulsions are suitable for the material according to the invention. These silver halide emulsions can be silver chloride, silver bromide or mixtures thereof, optionally together with a small quantity of up to 10 mol % of silver iodide.

Gelatin is preferably used as binder for the photographic layers. It can, however, be replaced either wholly or in part by other natural or synthetic binders. Examples of suitable natural binders include alginic acid and derivatives thereof such as salts, esters or amides, cellulose derivatives such as carboxymethyl cellulose, alkyl cellulose such as hydroxymethyl cellulose, starch or derivatives thereof such as ethers or esters or carragenates. Suitable synthetic binders include polyvinyl alcohol, partially hydrolysed polyvinyl acetate and polyvinyl pyrrolidone.

The emulsions can also be chemically sensitized, for example by the addition of sulfur-containing compounds during chemical ripening, for example allyl isocyanate, allyl thiourea and sodium thiosulfate and the like. Other suitable chemical sensitizers include reducing agents, for example the tin compounds described in Belgian Pat. Specifications No. 493,464 or 568,687; and polyamines, such as diethylene triamine; or aminomethane sulfinic acid derivatives, for example in accordance with Belgian Pat. Specification No. 547,323.

Other suitable chemical sensitizers include noble metals and noble metal compounds such as gold, platinum, palladium, iridium, ruthenium or rhodium. This

method of chemical sensitization is described in the article by R. Koslowsky in *Z. Wiss. Phot.* 46, 65-72 (1951).

The emulsions can also be sensitized with polyalkylene oxide derivatives, for example with polyethylene oxide having molecular weight of from 1000 to 20,000, and with condensation products of alkylene oxides and aliphatic alcohols, glycols, cyclic dehydration products of hexitols, with alkyl-substituted phenols, aliphatic carboxylic acids, aliphatic amines, aliphatic diamines and amides. The condensation products have molecular weights of at least 700, preferably more than 1000. In order to obtain special effects, these sensitizers can, of course, be used in combination with one another, as described in Belgian Pat. Specification No. 537,278 and in British Pat. Specification No. 727,982.

The emulsion can also be spectrally sensitized by spectral sensitizers, for example the usual monomethine or polymethine dyes, such as acid or basic cyanines, hemicyanines, streptocyanines, merocyanines, oxonoles, hemioxonoles, styryl dyes or others, or trinuclear or polynuclear methine dyes, for example rhodacyanines or neocyanines. Sensitizers of this kind are described, for example, in the book by F.M. Hamer, "The Cyanine Dyes and Related Compounds" (1964), Interscience Publishers, John Wiley and Sons.

The emulsions can contain the conventional stabilizers, for example homopolar or salt-like compounds of mercury with aromatic or heterocyclic rings such as mercaptotriazoles, simple mercury salts, sulfonium mercury double salts and other compounds of mercury. Other suitable stabilizers include azaindenes, preferably tetraazaindenes or pentaazaindenes, especially those substituted by hydroxy or amino groups. Compounds of this kind are described in the article by Birr in *Z. Wiss. Phot.* 47, 2-58 (1952). Other suitable stabilizers include inter alia heterocyclic mercapto compounds, for example phenyl mercapto compounds, for example phenyl mercaptotetrazole, quaternary benzthiazole derivatives and benztriazole and the like.

The emulsions can be hardened in the usual way, for example with formaldehyde or with halogen-substituted aldehydes containing a carboxyl group, such as mucobromic acid, diketones, methane sulfonic acid esters and dialdehydes.

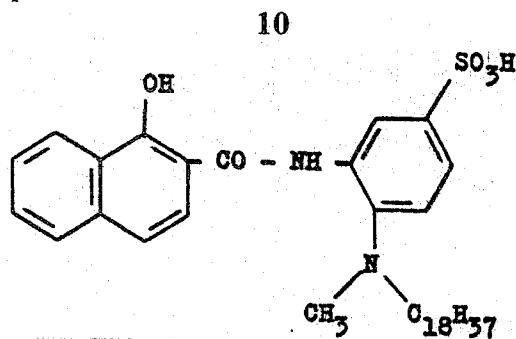
Suitable developers for the material according to the invention include the color developers normally used in color photography, for example the usual aromatic compounds of the para-phenyl diamine type containing at least one primary amino group. Examples of suitable color developers include N,N-dimethyl-p-phenylene diamine, N,N-diethyl-p-phenylene diamine, monomethyl-p-phenylene diamine, 2-amino-5-diethylamino toluene, N-butyl-N- $\omega$ -sulfobutyl-p-phenylene diamine, 2-amino-5-(N-ethyl-N- $\beta$ -methane sulfon-amidoethylamino)-toluene, N-ethyl-N- $\beta$ -hydroxyethyl-p-phenylene diamine, N,N-bis-( $\beta$ -hydroxyethyl)-p-phenylene diamine and 2-amino-5-(N-ethyl-N- $\beta$ -hydroxyethylamino)-toluene. Other suitable color developers are described, for example, in *J. Amer. Chem. Soc.* 73, 3100 (1951).

#### EXAMPLE 1

##### Layer A

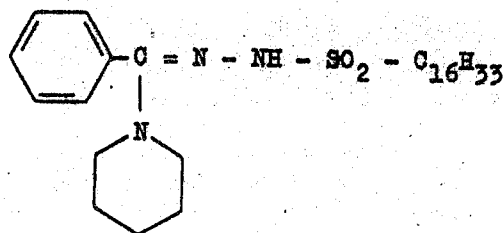
1 kg of red-sensitized silver bromide emulsion containing 40 g of silver per kg has added to it:

- a. 15 g of a cyan-forming coupler of the formula:



in the form of an aqueous alkaline solution and, as the masking compound,

- b. 6.5 g of an amidrazone of the formula:



in the form of an emulsified product in solution in gelatin.

Following the addition of 30 ml of a 10% by weight aqueous saponin solution and 10 ml of a 0.5% by weight aqueous chromium acetate solution, the emulsion is cast on to a layer substrate of cellulose triacetate. Silver coating: 1.2 g/m<sup>2</sup>.

##### Layer B

The emulsion described for layer A has

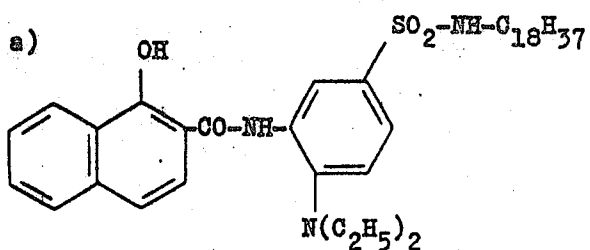
- c. 1.5 g of DIR-compound No. 6 additionally added to it, and is then cast. Silver coating: 1.6 g/m<sup>2</sup>. Layers A and B are exposed to red light behind a grey step wedge and then processed as follows:

1. Development for seven minutes at 20°C
  - 2.75 g. of diethyl-p-phenylene diamine.H<sub>2</sub>SO<sub>4</sub>,
  - 2.0 g of anhydrous sodium sulfite,
  - 2.0 g of sodium hexametaphosphate,
  - 1.2 g of hydroxylamine sulfate,
  - 2.0 g of potassium bromide, and
  - 75.0 g of anhydrous potassium carbonate,
 made up with water to 1000 ml  
pH value adjusted to 10.8 to 11.0.
2. Intermediate bath, two minutes at 20°C
  - 30 g of sodium sulfate,
  - 0.2 g of potassium bromide, and
  - 30 ml of developer 1,
 made up with water to 1000 ml.
3. Rinsing, 15 minutes.
4. Bleach bath, 5 minutes
  - 50 g of potassium ferricyanide, and
  - 15 g of potassium bromide,
 made up with water to 1000 ml,  
pH value adjusted to 5.5.
5. Rinsing, 5 minutes.
6. Fixing bath, 5 minutes
  - 200 g of sodium thiosulfate,
 made up with water to 1000 ml.
7. Rinsing, 10 minutes
8. Drying.

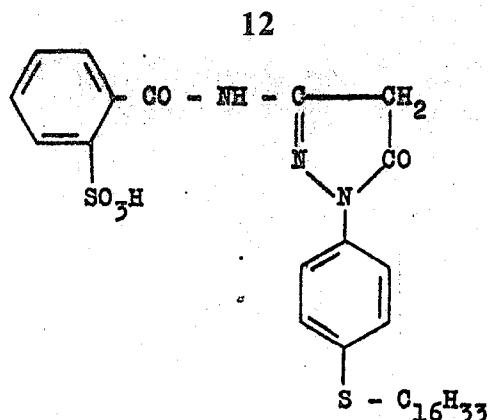
In both instances, red-masked cyan images are obtained whose cyan gradation is comparable despite the greater silver covering of B. The image obtained with B has a much finer grain.

# 11 EXAMPLE 2

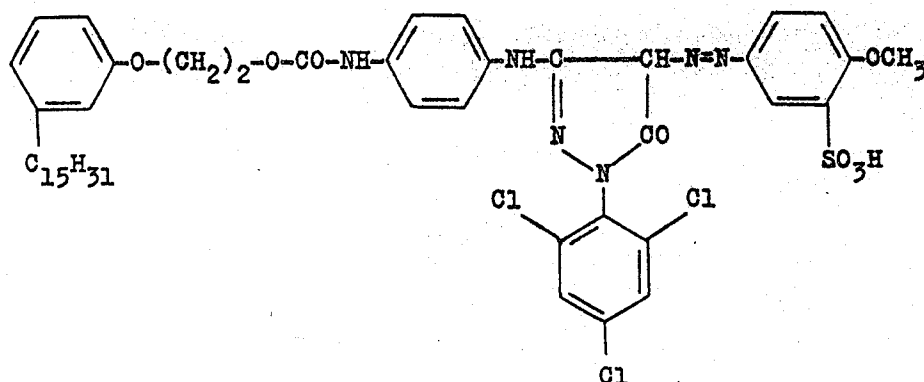
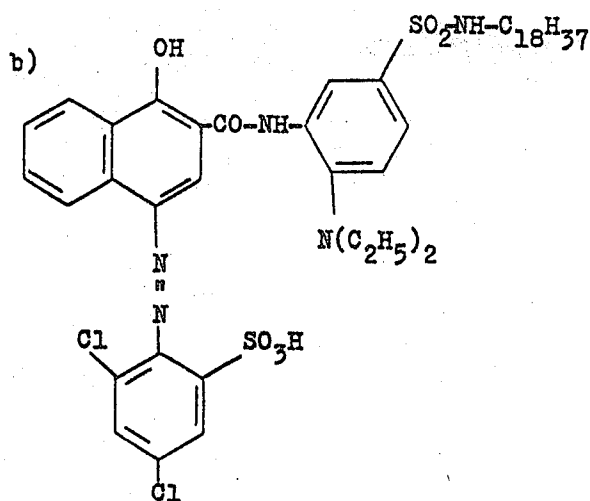
The colorless coupler used in Example 1 is replaced by 12 g of a cyan-forming coupler corresponding to the formula:



and the colorless masking compound is replaced by 11 g of a colored masking coupler corresponding to the formula:



is used as the colorless coupler, and 7.5 g of a compound corresponding to the formula:



and two layers are prepared as described in Example 1. In this instance, as well, a finer colour grain is obtained by addition of the DIR-compound, although gradation is again comparable.

## EXAMPLE 3

The same effect is observed with yellow-masked layers containing a magenta-forming coupler if the emulsion of Example 1 is green-sensitized and 15 g of a pyrazolone corresponding to the formula:

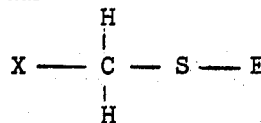
is used as the masking coupler with (layer B) and without (layer A) DIR-compound No. 6.

We claim:

1. In a light-sensitive color-photographic material comprising at least one light-sensitive silver halide emulsion layer, which layer contains the following compounds:

- a colorless non-diffusing color coupler I which gives a non-diffusing image dye on reaction with color developer oxidation products;
- a non-diffusing mask former II which forms, during photographic processing, a color mask suitable for masking the side density of the image dye; said mask former being selected from the group consisting of an osazone, an amidrazone, and a colored masking coupler;
- a colorless non-diffusing non-preformed DIR-compound III which is a thioether and which splits off a diffusing development-inhibiting substance during reaction with color developer oxidation products;

the improvement according to which the non-preformed DIR-compound III does not contribute towards formation of the image dye during photographic processing and has the formula



13

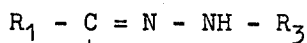
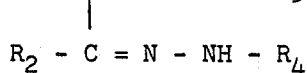
in which

E represents aryl or an aromatic heterocyclic group;  
and

X represents a benzoyl group carrying at least one  
substituent which contains an alkyl radical with at  
least 10 carbon atoms. 5

2. A material as claimed in claim 1 wherein the col-  
ored masking coupler is a 5-pyrazolone coupler or a  
naphthol coupler and has an azo group in coupling po-  
sition.

3. A light sensitive color-photographic material com-  
prising at least one light-sensitive silver halide emul-  
sion layer containing a colorless non-diffusing color  
coupler capable of reaction with the oxidation product  
of color developer to form an image dye, and two dif-  
ferent compounds capable of reacting with oxidation  
products of a color developer to improve the color re-  
productions and color balance in the photographic ma-  
terial, one of said compounds being a mask former of  
one of the following formulae

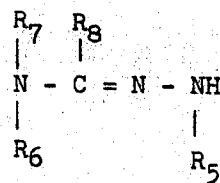


in which

R<sub>1</sub> and R<sub>2</sub> each represents hydrogen or an alkyl, aryl,  
aralkyl or a heterocyclic radical, or both together  
represent parts of an isocyclic or heterocyclic radi-  
cal, and

R<sub>3</sub> and R<sub>4</sub> each represents an aryl or heterocyclic rad-  
ical; and

14



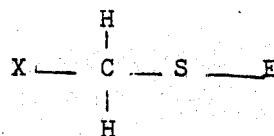
in which

R<sub>5</sub> represents the group —SO<sub>2</sub>X in which X repre-  
sents alkyl or aryl;

R<sub>6</sub> and R<sub>7</sub> each represent alkyl or aryl or together  
together with the N-atom to which they are attached  
represent a heterocyclic ring;

R<sub>8</sub> represents an aryl or heterocyclic group; or

R<sub>7</sub> and R<sub>8</sub> can also form parts of a heterocyclic ring;  
and the other compound being a development-  
inhibitor-releasing compound of the formula



in which

E represents aryl or an aromatic heterocyclic group;  
and

X represents a benzoyl group carrying at least one  
substituent which contains an alkyl radical with at  
least 10 carbon atoms.

\* \* \* \* \*

35

40

45

50

55

60

65