

[54] **METHOD OF INCORPORATING  
PHOTOGRAPHIC ADJUVANTS INTO  
HYDROPHILIC COLLOIDS**

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96/84, 96/114.5

[51] **Int. Cl.**..... **G03c 1/40**

[58] **Field of Search**..... 96/100, 114.5

[56] **References Cited**

**UNITED STATES PATENTS**

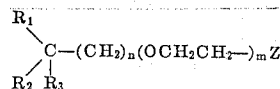
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*Primary Examiner*—J. Travis Brown

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[57] **ABSTRACT**

A photographic chemical compound is incorporated into a hydrophilic colloid composition by dispersing a solution of the chemical compound in the hydrophilic colloid composition in the presence of a surface active compound of the formula :



wherein :

$n$  is 0 or 1 and  $m$  is 0 to 30,

$R_3$  is hydrogen or when  $n$  is 1 may be alkyl,

$R_2$  and  $R_3$  stand for straight-chain or branched-chain alkyl groups or together are the atoms necessary to complete an alicyclic ring structure,  $R_1$  and  $R_2$  comprising at least eight C-atoms, and

$Z$  is a group  $-SO_3M$ ,  $-OSO_3M$ ,  $-OCOXS_3M$  or  $-Y-A-SO_3M$  wherein

$M$  is hydrogen, alkali metal, ammonium or organic ammonium

$X$  is alkylene, aralkylene or arylene,

$Y$  is oxygen or sulphur, and

$A$  is alkylene or aralkylene.

The colloid composition can be a light-sensitive silver halide emulsion or a non-light-sensitive water-permeable colloid composition.

**11 Claims, 4 Drawing Figures**

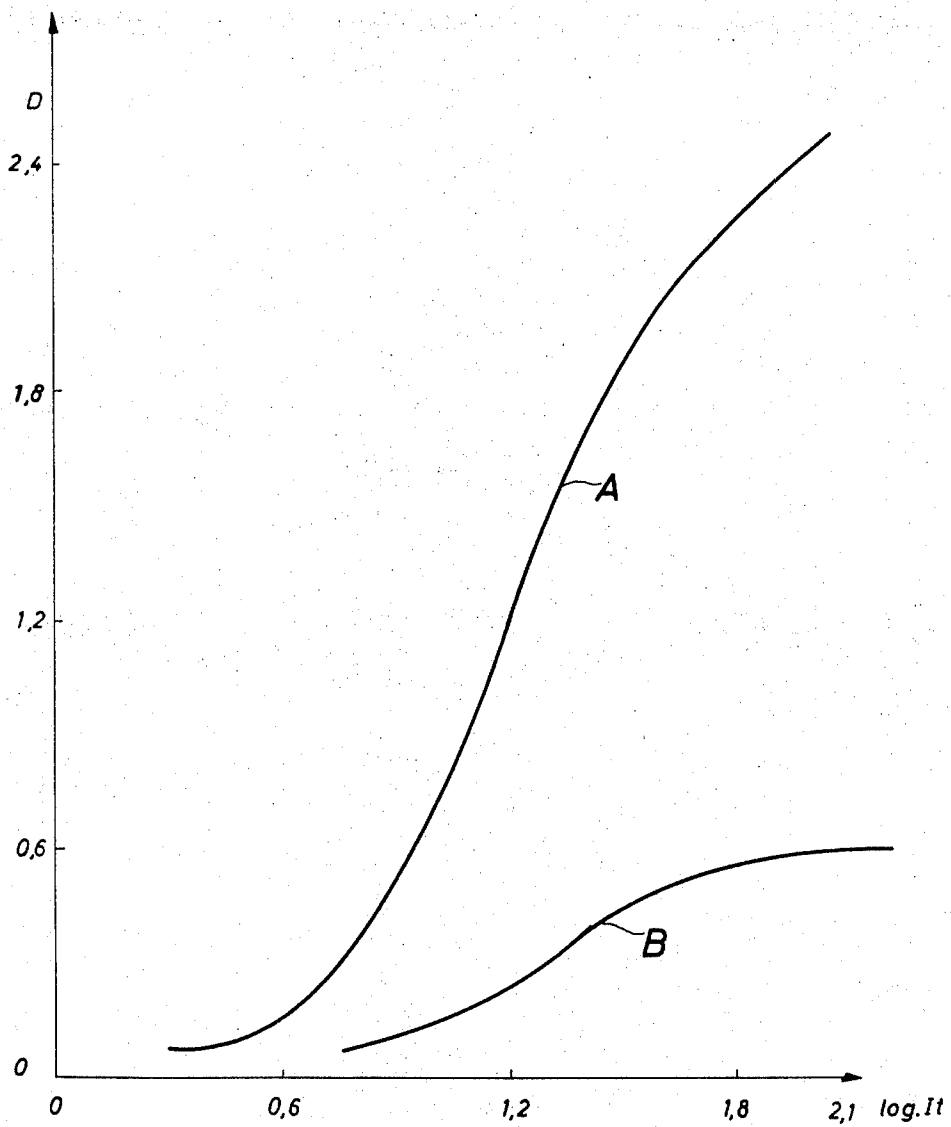


Fig. 1

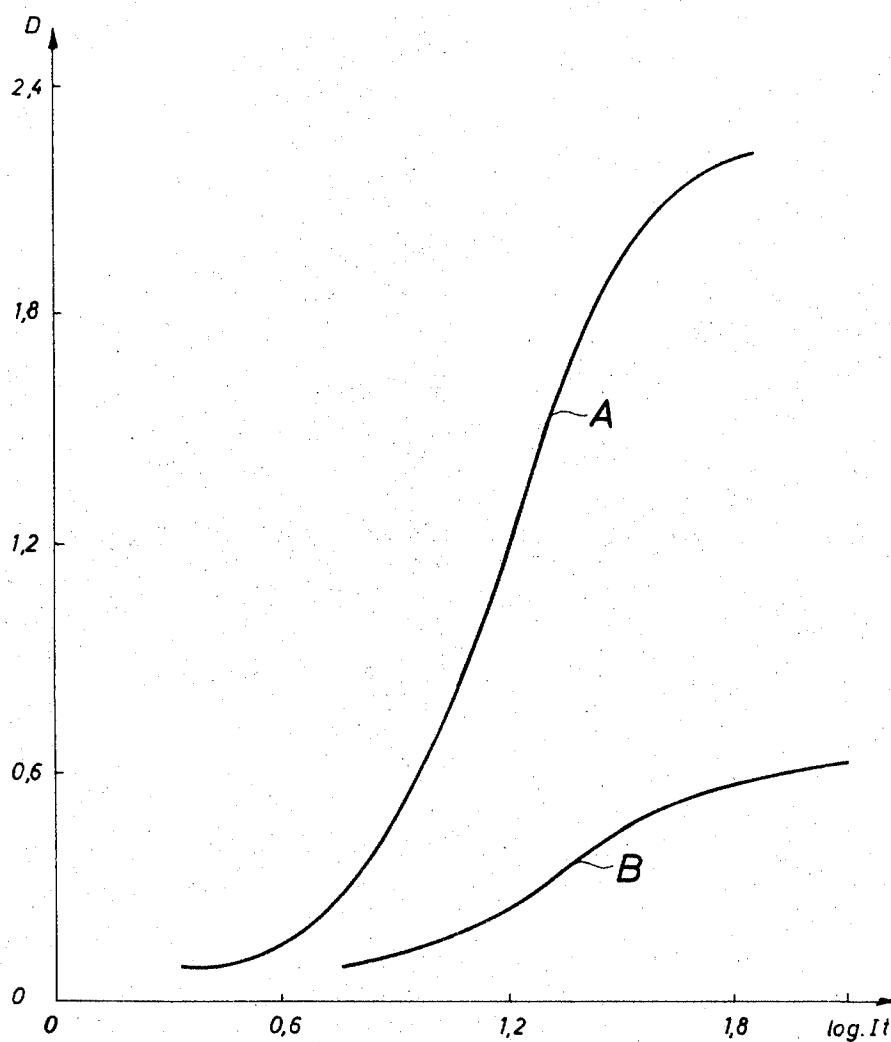


Fig. 2

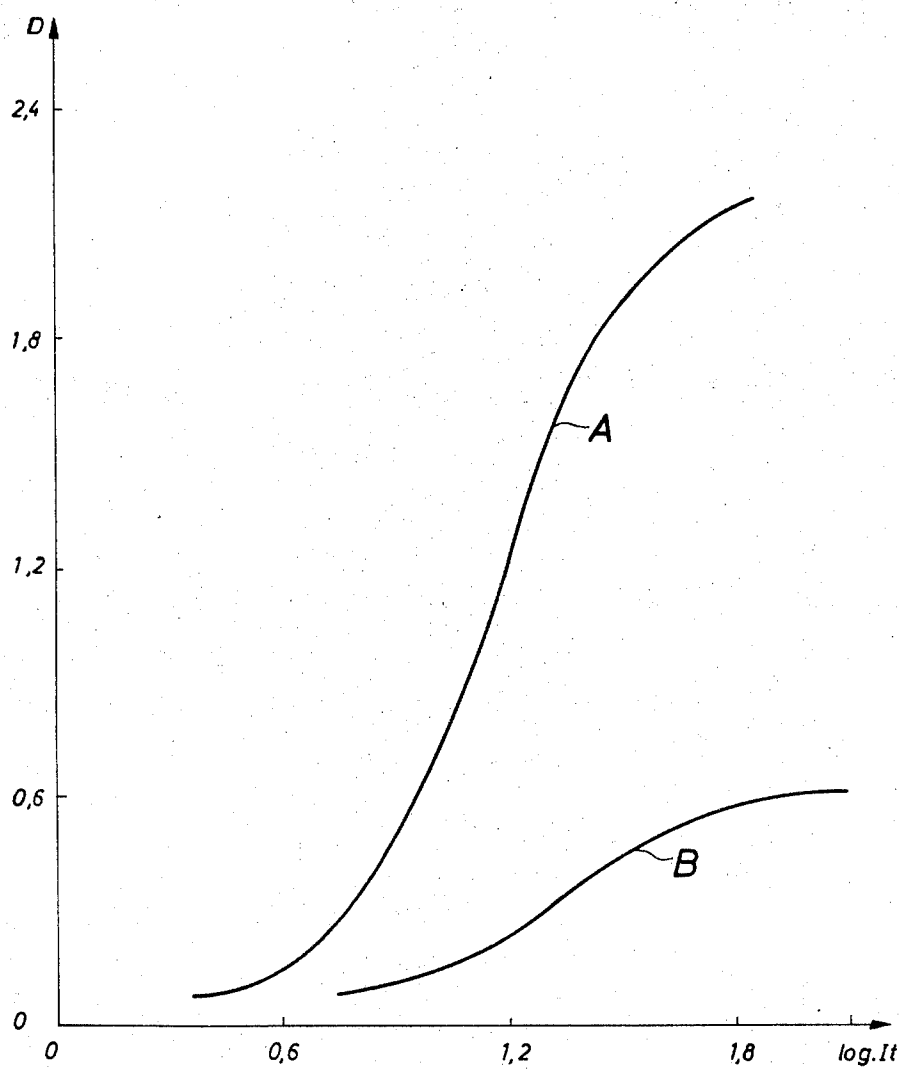


Fig. 3

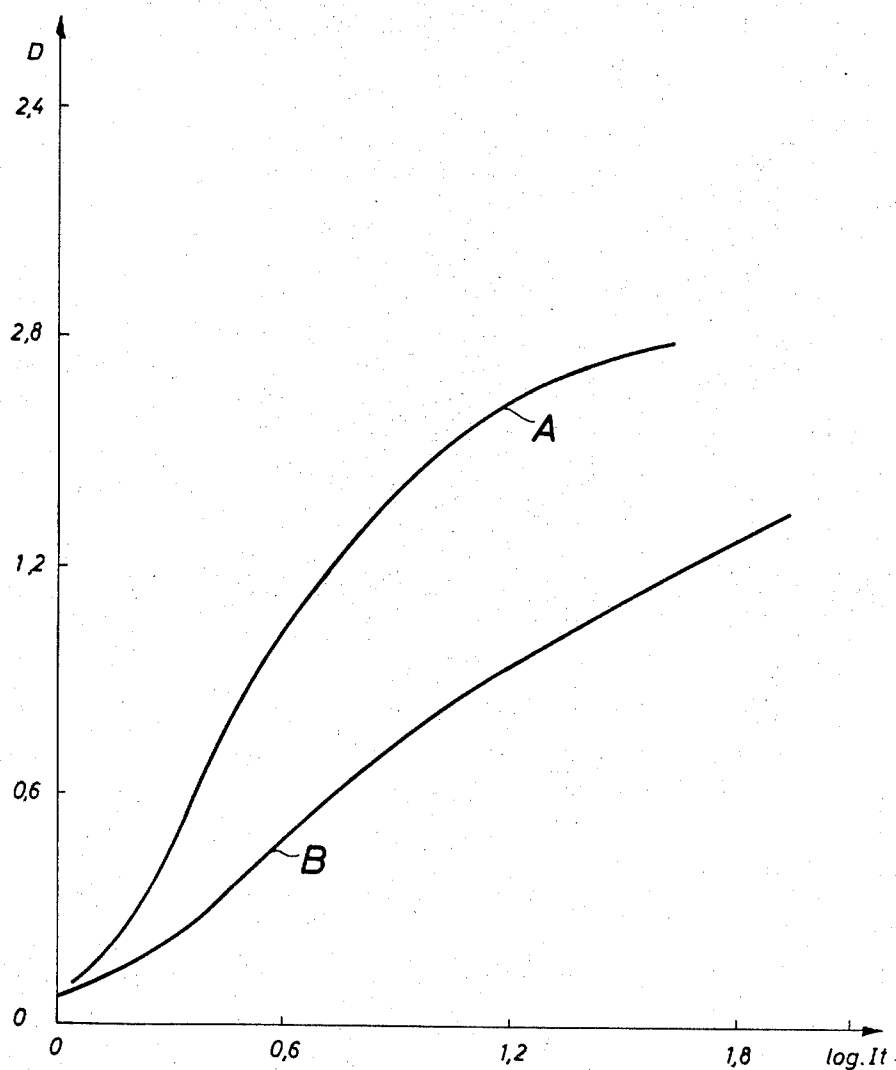


Fig. 4

## METHOD OF INCORPORATING PHOTOGRAPHIC ADJUVANTS INTO HYDROPHILIC COLLOIDS

The present invention is concerned with a method of incorporating photographic chemical compounds into hydrophilic colloid compositions.

In the manufacture of a photographic silver halide material numerous additives should be brought into operative association in one or more of the hydrophilic colloid layers of the said material. These additives include amongst others colour couplers, competing couplers, mask-forming compounds, dyes, e.g. filter dyes, antihalation dyes and sensitizing dyes, stabilizers, U.V.-absorbers, optical brightening agents, etc.

The methods according to which these additives are incorporated into the photographic hydrophilic colloid layers present numerous problems and much effort has been directed to solve these problems, particularly with regard to the incorporation in photographic emulsions of colour couplers and mask-forming compounds.

By colour coupler is meant any compound which in silver halide photography couples with an oxidized aromatic primary amino colour developing agent to form a dye image. By mask-forming compound is meant a compound which oxidatively couples with a colour coupler in an oxidizing bleaching bath as for example described in British Patents Nos. 880,862, and 975,932 to form a coloured mask image.

It is essential that colour couplers and mask-forming compounds when incorporated in photographic light-sensitive emulsions remain immobile and do not wander or diffuse through the emulsion from their original site otherwise colour separation will be imperfect and result in final dye images that are degraded. A common method employed to render colour couplers and mask-formers non-diffusible in hydrophilic colloid media is to provide them in the course of their synthesis with one or more ballast groups, e.g. a long straight-chain or branched-chain aliphatic group such as an alkyl or alkylene group comprising from five to 20 carbon atoms. The presence of this ballast group imparts to the molecule a hydrophobic character and therefore, these non-diffusible colour couplers and mask-formers are generally also provided with one or more salt-forming groups e.g. carboxy groups and preferably sulpho groups, so that these compounds can be dissolved in the photographic emulsions in the form of their soluble alkali salts.

However, the incorporation of photographic chemical compounds containing salt-forming groups, into aqueous hydrophilic colloid compositions frequently poses a number of difficulties. For instance, some compounds are soluble only in highly alkaline solutions, which might give rise to hydrolysis of possibly present ester groups or which are too basic for use as such in conventional light-sensitive silver halide material, where approximately neutral solutions are most desirable, so that the hydrophilic colloid composition should be reacidified afterwards whereby inorganic salts are formed. By adjustment of the pH to pH values of 6.2-6.5 the photographic ingredients are present in the form of microcrystalline dispersions. The action of the protective colloids such as gelatin is generally insufficient so that recrystallization arises which may result in a loss in sensitivity, a flattening of the gradation and a decrease of colour brilliancy.

Even though it has been proposed to use lithium salts and increased amounts of wetting agent no significant

improvement could be obtained. A series of hydrophilic substances as described above also show the property of increasing the viscosity of the coating solution so drastically that it is no longer possible to use the solutions obtained.

Alternate processes of incorporating photographic chemical compounds in photographic colloids make use of dispersion techniques. One of the advantages of these processes is that compounds may be used which contain no salt-forming groups.

According to one of said dispersion techniques, substantially water-insoluble colour couplers are dissolved in a volatile substantially water-immiscible solvent such as ethyl acetate and chloroform whereupon the solution formed is dispersed in extremely fine droplets in the presence of a wetting or dispersing agent into an aqueous non-light-sensitive hydrophilic colloid medium, in particular aqueous gelatin, after which the solvent is removed by evaporation and the non-light-sensitive hydrophilic colloid composition comprising colour coupler dispersed therein is admixed with the light-sensitive silver halide emulsion. However, according to this method too the colour couplers show recrystallization tendencies after removal of the solvents employed and the recourse to use of increased amounts of dispersing agents was also not successful in this method.

According to another dispersion technique, the couplers are dissolved in water-immiscible, oily type solvents or "crystalloids" such as tricresyl phosphate and di-n-butyl phthalate and the resulting solution added to an aqueous phase containing a dispersing agent such as gelatin or a higher fatty alcohol sulphate. The mixture is then passed through a homogenizing apparatus wherein is formed a dispersion of the oily coupler solution in the aqueous medium. In some instances, the dissolution of the coupler in the oily solvent is facilitated by the use of an auxiliary low-boiling water-immiscible solvent which is subsequently removed by evaporation. The above dispersion of coupler is then mixed with a gelatino silver halide emulsion and coated in the usual manner to produce a system in which particles of coupler, surrounded by an oily membrane, are distributed throughout the gel matrix, the said oily membrane favourably reducing the recrystallization tendency.

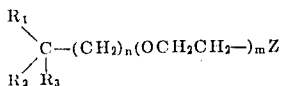
One of the main disadvantages of the latter dispersion technique is that hydrophilic developers e.g. N-butyl-N- $\omega$ -sulphobutyl-p-phenylenediamine do not penetrate or only to a slight extent into the oil drops formed which results in a loss in sensitivity and a flattening of the gradation as well as to a decrease in the image density. On the other hand, residues of hydrophobic developers used may be retained in the drops and give rise to fog on treatment of the photographic material in the oxidizing bleaching solution.

A new technique has now been found for incorporating photographic chemical compounds into hydrophilic colloid coating compositions for forming water-permeable colloid layers of a photographic element, according to which technique the disadvantages of the above methods are reduced or eliminated.

Though this new technique may be employed with particular advantage for incorporating colour couplers and mask-formers into light-sensitive silver halide emulsions, it can also be used to introduce into light-sensitive emulsions other photographic emulsion auxiliary compounds such as competing couplers, which are

used in colour photography as described in British Patent 861,138, light-screening dyes, sensitizing dyes, stabilizers, etc. Moreover, the method of the present invention can also be employed in the preparation of uniform dispersions of photographic compounds in unsensitized photographic colloid compositions. For example, it may be used in the production of water-permeable intermediate layers in which it is desired uniformly to distribute light-absorbing filter or anti-halation dyes, competing couplers and other photographic active substances such as U.V.-absorbers, optical brightening agents, etc.

The present invention provides a method of homogeneously distributing a photographic chemical compound throughout a hydrophilic colloid coating composition for forming a water-permeable colloid layer of a photographic silver halide element, according to which a solution of the said compound is dispersed e.g. emulsified in the said coating composition or, is dispersed first in an aqueous solution of a water-soluble colloid for example gelatin whereupon the resulting dispersion is admixed with the said coating composition, wherein the said dispersing of the said chemical compound occurs in the presence of a surface active compound corresponding to the formula:



wherein:

$n$  stands for 0 or 1,

$m$  stands for 0 to 30, preferably 0 to 12,

$R_3$  stands for hydrogen or when  $n=1$  may be alkyl for example methyl,

each of  $R_1$  and  $R_2$  stands for a straight-chain or branched-chain alkyl group or  $R_1$  and  $R_2$  together represent the atoms necessary to close an alicyclic ring structure,  $R_1$  and  $R_2$  together comprising at least 8 carbon atoms, and

$Z$  stands for the group  $-SO_3M$ ,  $-OSO_3M$ ,  $-O-CO-X-SO_3M$  or  $-Y-A-SO_3M$  wherein

$M$  stands for hydrogen, an alkali metal atom such as lithium, sodium and potassium, ammonium or organic ammonium e.g. diethanol ammonium, diethyl ammonium, morpholinium etc.,

$X$  stands for alkylene, aralkylene or arylene,

$Y$  stands for oxygen or sulphur, and

$A$  is alkylene, substituted alkylene e.g. alkylene substituted by hydroxy, or aralkylene.

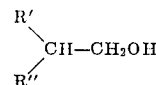
The surface active compounds corresponding to the above general formula were found to be markedly superior than the surface active compounds commonly employed for dispersing solutions of chemical compounds in hydrophilic colloid compositions.

They markedly reduce the recrystallization tendency of the compounds in the hydrophilic colloid layers. When used for incorporating colour couplers in light-sensitive silver halide emulsion layers it was found that the surface active compounds of the above formula have a favourable effect on the oxidative coupling of the colour coupler with the aromatic primary amino colour developing agent which results in higher maximum densities than obtained when using common dispersing agents. Moreover it was found that by the use of the surfactants corresponding to the above formula

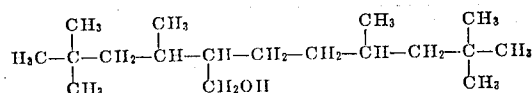
colour images are obtained having a high stability upon storing under conditions of high temperature and humidity whereas under these circumstances, common dispersing agents do not prevent the colour images from undergoing discolourations.

The surfactants corresponding to the above general formula can be prepared e.g. as described in co-pending Applications Nos. 150,196; 150,200; 150,197, and 150,199 by starting from the appropriate alcohol or ethoxylated alcohol.

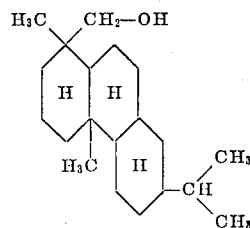
Examples of alcohols suitable for preparing the above surfactants are the widely known branched-chain primary oxo-alcohols having at least 10 C-atoms such as isodecylalcohol, isotridecylalcohol, isohexadecylalcohol and isoctadecylalcohol. Isodecylalcohol is a commercial material prepared from  $C_9$ -olefins (tripropylene) by means of the oxo-synthesis (cfr. H.Römpf, Chemie Lexikon - Francksche Verlag - Stuttgart, W.Germany) and is a mixture of primary branched-chain  $C_{10}$  alcohols. Isotridecyl alcohol is a commercial material prepared from  $C_{12}$ -olefins (triisobutylene, tetrapropylene or di(2-methyl-1-pentene)-by means of the oxo-reaction and is a mixture of primary branched-chain  $C_{13}$ -alcohols. Isohexadecylalcohol and isoctadecylalcohol are commercial materials prepared by aldol-condensation of  $C_8$ - or  $C_9$ -aldehydes formed by oxo-synthesis; isohexadecylalcohol is a mixture of branched-chain  $C_{16}$ -alcohols mainly consisting of alcohols as represented by the formula:



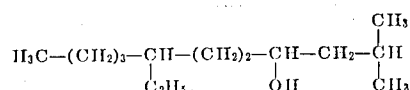
wherein  $R'$ =dimethylbutyl and  $R''$ =dimethylhexyl whereas isoctadecylalcohol is a branched-chain alcohol for which the following formula is given:



Other examples of branched-chain alcohols are abietol which is an alicyclic alcohol having the formula:



the branched-chain commercially available secondary alcohols such as isotetradecylalcohol which is an alcohol with formula:



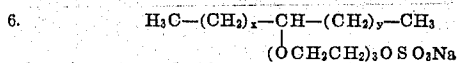
and 2-n-butyl-n-octylalcohol.

Other alcohols suitable for preparing the surfactants corresponding to the above general formula are the alcohols prepared by alkaline condensation using catalytic amounts of alkali such as potassium hydroxide at temperatures comprised between 200° and 300°C (known as Guerbet-reaction — see e.g. Fette-Seifen-Anstrichmittel, 71, no. 3, p.215-218 (1969)) of a branched-chain or straight-chain alcohol with the same or other branched-chain or straight-chain alcohol.

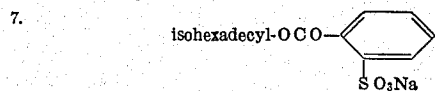
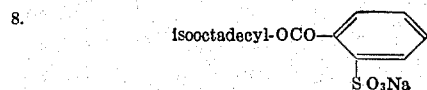
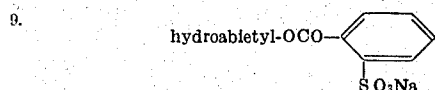
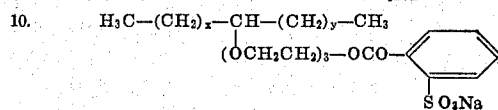
More details regarding the preparation, the composition and the properties of branched-chain oxo-alcohols can be found in Fortsch.Chem.Forsch.Bd.11.1 p. 121-134.

Representative examples of surfactants corresponding to the above general formula can be found in the above co-pending applications. They include for instance the following:

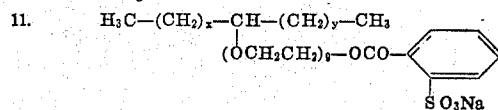
1. sodium isohexadecyl sulphonate
2. sodium isooctadecyl sulphonate
3. sodium isohexadecyl sulphate
4. sodium isooctadecyl sulphate
5. sodium hydroabietyl sulphate



wherein  $x+y=8-12$

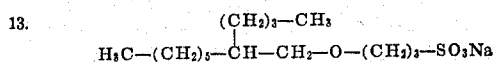


wherein  $x+y=8-12$



## 12. isotridecyl-O-(CH<sub>2</sub>)<sub>3</sub>-SO<sub>3</sub>Na

wherein  $x+y=8-12$

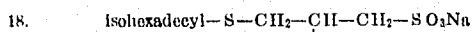
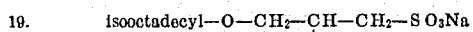
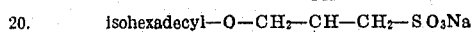
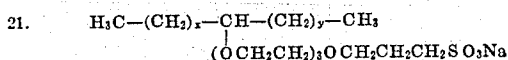


## 14. isotetradecyl-O-(CH<sub>2</sub>)<sub>3</sub>-SO<sub>3</sub>Na

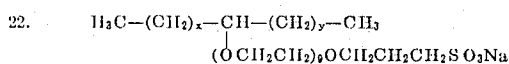
## 15. isohexadecyl-O-(CH<sub>2</sub>)<sub>3</sub>-SO<sub>3</sub>Na

## 16. isooctadecyl-O-(CH<sub>2</sub>)<sub>3</sub>-SO<sub>3</sub>Na

## 17. hydroabietyl-O-(CH<sub>2</sub>)<sub>3</sub>-SO<sub>3</sub>Na



wherein  $x+y=8-12$



wherein  $x+y=8-12$

In accordance with the method of the present invention a photographic chemical compound comprising no alkali-solubilizable groups may be incorporated into hydrophilic colloid media by forming a solution of the said compound and a surface active compound as described above in a low-boiling substantially water-immiscible solvent and dispersing the solution with the aid of a high speed stirrer, a homogenizer, a colloid mill, an ultrasonic wave generator or other suitable means into a hydrophilic colloid medium which may be a hydrophilic colloid coating composition for forming one of the water-permeable layers of a photographic silver halide element or an aqueous solution of a water-soluble colloid which is later admixed with such hydrophilic colloid coating composition.

Hydrophilic photographic chemical compounds carrying an alkali-solubilizable carboxyl group or a sulpho group may be dissolved together with a surface active compound corresponding to the above general formula in an alkaline liquid whereupon the solution is dispersed as described above into an acidified hydrophilic colloid coating composition so as to obtain the desired pH-value, for instance pH 6.2-6.5. Certain photographic chemical compounds such as colour couplers that have no carboxyl or sulpho groups but that are soluble in alkaline medium for instance in enolate form can be incorporated in photographic colloid layers in the same way.

Though the surface active compound is generally dissolved together with the photographic chemical compound in the alkaline liquid or the low boiling water-immiscible solvent it is also possible to add the said surfactant to the hydrophilic colloid composition into which the solution of photographic chemical compound is dispersed.

In carrying out the method of the present invention, the ratio of photographic chemical compound to surface active compound corresponding to the above general formula is generally comprised between about 10:1 and 1:1, preferably between 5:1 and 1:1.

We have referred to dissolving the photographic chemical compounds comprising no alkali-solubilizable groups and the surface active compounds corresponding to the above formula in a low-boiling substantially water-immiscible solvent. These low-boiling substantially water-immiscible solvents preferably have a solubility in water of at most 25 percent by weight at room temperature, say 20°C. They preferably have a boiling point of at most 130°C and a sufficiently high vapour pressure so that they can be removed from the dispersions made, by applying a vacuum of 500 to 10 mm Hg at a temperature of 25° to 80°C.

Examples of suitable substantially water-immiscible solvents that may be used in the method of the present invention are: methylene chloride, methyl formate, ethyl formate, n-butyl formate, methyl acetate, ethyl acetate, n-propyl acetate, isopropyl acetate, butyl acetate, methyl propionate, ethyl propionate, diethyl carbonate, carbontetrachloride, sym.-tetrachloroethane, 1,1,2-trichloroethane, 1,2-dichloropropane, chloroform, n-butylalcohol, diethylketone, methyl-n-propylketone, diisopropyl ether, cyclohexane, methyl-cyclohexane, benzene, toluene, nitromethane, etc.

The substantially water-immiscible low-boiling solvent is preferably removed during and/or after dispersing the solution into the aqueous colloid or the hydrophilic colloid coating composition by evaporation occasionally by applying a reduced pressure, say from 500 mm to 10 mm Hg and/or moderate heating. Of course, it is also possible to leave the low-boiling water-immiscible solvent in the dispersion and to remove it by evaporation on drying the coated hydrophilic colloid composition; this is effected by allowing the solvent to escape on drying the coating composition which is only applicable when sufficiently volatile solvents are used.

It may be interesting in some cases to use together with a low-boiling substantially water-immiscible solvent an appreciable water-soluble organic solvent, examples of which are methanol, ethanol, isopropyl alcohol, dimethyl sulphoxide, tetrahydrofuran, N-methyl-2-pyrrolidone, dioxan, dimethylformamide, dimethoxyethane, formamide, ethylene glycol, acetonitrile, acetone, butyrolactone, ethyleneglycol monomethyl ether, ethylene glycol monoethyl ether, diethylene glycol monomethyl ether, diacetone alcohol and tetrahydrothiophene-1,1-dioxide.

The water-soluble organic solvents can be removed from the dispersion in the aqueous colloid or from the hydrophilic colloid coating composition — unless this is deemed unnecessary because they will have no disadvantageous effect on the physical or photographic properties of the photographic elements when left in the dispersion — by washing the chilled and thereby gelled colloid composition. They may be removed together with the low-boiling water-immiscible solvent by evaporation unless they have too high a vapour pressure, in which case they can be removed, if necessary, as indicated above.

As already noted above, in carrying out the method of the present invention the solution of photographic chemical compound and surface active compound corresponding to the above formula may be dispersed directly in the photographic hydrophilic colloid coating composition or — particularly when it is intended to distribute photographic silver halide emulsion ingredients in a silver halide emulsion ready for coating — first in a gelatin solution or in any aqueous colloid which is miscible with the said coating composition, the resulting dispersion then being stored to create stocks of concentrated dispersions from which, whenever required, parts can be taken for addition to hydrophilic colloid coating compositions such as a gelatin silver halide emulsion.

Although in applying the method according to the present invention for incorporating photographic chemical compounds in hydrophilic colloid media, the use of gelatin as hydrophilic colloid is favoured, other water-soluble colloidal materials or mixtures of them can be used too, e.g. colloidal albumin, zein, casein, a cellulose derivative such as carboxymethyl-cellulose, a synthetic hydrophilic colloid such as polyvinyl-alcohol, poly-N-vinylpyrrolidone, etc.

The hydrophilic colloid media into which the photographic chemical compounds are incorporated in accordance with the method of the present invention may contain all sorts of additives such as light-sensitive silver halide, antifoggants, stabilizers, hardeners, plasticizers, coating aids, antistatic agents, etc. It may be interesting to incorporate into the said hydrophilic colloid media agents reducing foaming when dispersing therein the solution of photographic chemical com-

pound such as fatty straight-chain or branched-chain alcohols.

Further, it is possible to disperse the photographic chemical compounds in accordance with the method of the present invention in the presence of high-boiling water-immiscible oily type solvents. By the presence of the surfactants used according to the invention the disadvantages normally encountered when using said oil type solvents are reduced or eliminated.

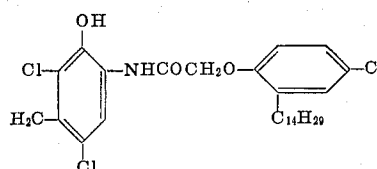
Photographic silver halide emulsions into which colour couplers, mask-formers or other photographic chemical compounds are incorporated according to the method of the present invention, may be chemically as well as spectrally sensitized. The light-sensitive silver halide emulsions may be chemically sensitized by effecting the chemical ripening in the presence of small amounts of sulphur containing compounds such as allyl isothiocyanate, allyl thiourea, sodium thiosulphate, etc.

The light-sensitive emulsions may also be sensitized by means of reduction compounds, e.g. the tin compounds described in Belgian Patent Specifications 493,464 and 568,687, the imino-amino methane sulphonic acid compounds described in Belgian Patent Specification 547,323 or by means of small amounts of noble metal compounds such as compounds of gold, platinum, palladium, iridium, ruthenium, rhodium, etc. It is also possible to sensitize the emulsion by means of polyoxyalkylene derivatives e.g. polyethylene oxide having a molecular weight comprised between 1,000 and 20,000 and condensation products of ethylene oxides with aliphatic alcohols, glycols, cyclic dehydration products of hexitols, alkyl-substituted phenols, aliphatic carboxylic acids, aliphatic amines, aliphatic diamines, and amides. The condensation products preferably have a molecular weight of at least 700 and preferably of more than 1,000. In order to obtain special effects it is of course also possible to use the sensitizing agents in combination with one another as e.g. described in Belgian Patent Specification 537,278 and in United Kingdom Patent Specification 727,982.

The following examples illustrate the present invention.

#### EXAMPLE 1

Thirty g of the cyan-forming colour coupler having the formula:



Fifteen g of the surface-active compound 3 and 1.5 g of LOROL SPECIAL (trade name for a mixture of aliphatic normal  $C_{12}$ - $C_{14}$  alcohols formed by the high pressure hydrogenation of coconut oil) were dissolved in a mixture of 30 g of diethyl carbonate and 50 g of methanol. The solution formed was dispersed by means of a high-speed stirrer into 1,250 ml of a 10 percent aqueous gelatin solution whereupon the diethyl carbonate was removed by evaporation under reduced pressure. The gelatin composition was then admixed with 1 kg of a red-sensitized gelatin silver halide emulsion comprising per kg 100 g of gelatin, 0.15 mole of silver chloride and 0.04 mole of silver bromide.

The emulsion obtained was then coated as usual as one of the layers of a multilayer colour material.

Upon colour development with an aromatic primary amino colour developing agent, it was found that for the same amount of silver halide per sq.m. the above emulsion yields markedly higher dye densities than an emulsion comprising the colour coupler incorporated without the aid of the above surfactant 3. This is clearly apparent from the density versus log I<sub>t</sub> curves A (using surfactant 3) and B (no surfactant 3) of FIG. 1 of the accompanying drawings.

#### EXAMPLE 2

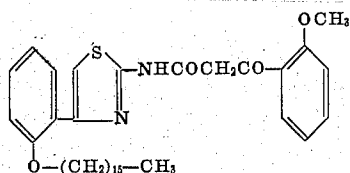
This example is analogous to example 1 with the difference that now surface-active compound 4 was used instead of surface-active compound 3. The same favourable result as in example 1 was obtained, as is illustrated by curves A and B of FIG. II of the accompanying drawings.

#### EXAMPLE 3

This example is analogous to example 1 with the difference that now surface-active compound 16 was used instead of surface-active compound 3. The same favourable result as in example 1 was obtained as is illustrated by curves A and B of FIG. III of the accompanying drawings.

#### EXAMPLE 4

Forty-two g of the yellow-forming colour coupler having the formula:



Twenty-two g of the surface-active compound 3 and 2.2 g of LOROL SPECIAL were dissolved in 130 g of diethyl carbonate. The solution formed was dispersed by means of a high-speed stirrer in 1250 ml of a 10 percent aqueous solution of gelatin, whereupon the diethylcarbonate was removed by evaporation under reduced pressure.

The gelatin composition was admixed with 1 kg of a blue-sensitive gelatino silver halide emulsion comprising per kg 100 g of gelatin and 0.22 mole of silver bromide.

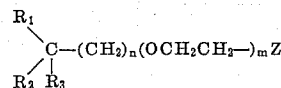
The emulsion was coated as usual as one of the layers of a multilayer colour material.

As is apparent from curves A and B of FIG. IV of the accompanying drawings, the above emulsion yields markedly higher dye densities than an emulsion comprising the colour coupler incorporated without the aid of the above surfactant 3.

We claim:

1. In the method of incorporating a photographic coupler or mask-former chemical compound into a hydrophilic colloid coating composition which is used in forming a water-permeable layer of a photographic silver halide element, in which a solution of the said chemical compound is dispersed in the said hydrophilic colloid coating composition or said chemical com-

pound is first dispersed in an aqueous solution of a water-soluble colloid and the resulting dispersion then admixed with the said hydrophilic colloid coating composition, the improvement wherein the dispersing of said chemical compound into said hydrophilic colloid coating composition is aided by having a surface active compound corresponding to the formula:



wherein:

*n* stands for 0 or 1,

*m* stands for 0 to 30,

*R*<sub>3</sub> stands for hydrogen or when *n*=1 may be alkyl,

each of *R*<sub>1</sub> and *R*<sub>2</sub> stands for a straight-chain or branched chain alkyl group or together stand for the atoms necessary to close an alicyclic ring structure, *R*<sub>1</sub> and *R*<sub>2</sub> together comprising at least eight C-atoms, and *Z* stands for the group —SO<sub>3</sub>M, —OSO<sub>3</sub>M, —OCO—X—SO<sub>3</sub>M or —Y—A—SO<sub>3</sub>M

wherein

*M* stands for hydrogen, an alkali metal atom, ammonium or organic ammonium,

*X* is alkylene, aralkylene or arylene,

*Y* is oxygen or sulphur, and

*A* stands for alkylene or aralkylene,

present during said dispersing, thereby providing a composition having high stability upon storing under conditions of high temperature and humidity, and reduced tendency for crystallization.

2. Method according to claim 1, wherein the ratio of photographic chemical compound to surface active compound is from about 10:1 and 1:1.

3. Method according to claim 1, wherein a solution of the photographic compound and the surface active compound in one or more organic solvents is dispersed in the said hydrophilic colloid coating composition or the said aqueous solution of a water-soluble colloid.

4. Method according to claim 3, wherein the said solvent is a substantially water-immiscible solvent.

5. Method according to claim 4, wherein said solvent has a solubility in water of at most 25 percent by weight at room temperature and a boiling point of at most 130°C.

6. Method according to claim 3, which comprises removing the said organic solvent simultaneously with or subsequently to dispersing the said solution of photographic component into the hydrophilic colloid coating composition or the aqueous solution of water-soluble colloid.

7. Method according to claim 1, wherein the said photographic chemical compound is a colour former or mask-former and the hydrophilic colloid coating composition is a gelatino silver halide emulsion.

8. Method according to claim 1, wherein *m*=0 and *n*=1.

9. Method according to claim 8, wherein



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is isohexadecyl.

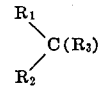
10. Method according to claim 8, wherein



is isooctadecyl.

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11. Method according to claim 8, wherein



is hydroabietyl.

\* \* \* \* \*

**Disclaimer**

3,762,925.—*Fritz Nittel*, Cologne Stammheim, Germany, *Robert Joseph Pollet*, Vremde; and *Raphael K. Van Poucke*, Berchem, Belgium. METHOD OF INCORPORATING PHOTOGRAPHIC ADJUVANTS INTO HYDROPHILIC COLLOIDS. Patent dated Oct. 2, 1973. Disclaimer filed Apr. 3, 1980, by the assignee, *Agfa-Gevaert, N.V.*

Hereby enters this disclaimer to all claims of said patent.

[*Official Gazette June 10, 1980.*]