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PROCESS FOR MANUFACTURING PHOTOGRAPHIC SILVER HALIDE DEVELOPING EMULSIONS DURABLY FREE FROM GREY AND YELLOW FOGGING AND OF DURABLE QUALITY

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8 Claims. (Cl. 95—7)

The particular action produced by small quantities of gold or mercury salts when added each separately to silver halogenated developing emulsions is known long since. The extraordinary action of the simultaneous addition of both substances is however not known until now. Long since it has been proposed to use gold and mercury salts for the removal of yellow fog from already developed negatives, but it is however completely surprising that such effect is also produced when such substances are added to emulsions.

In fact, solutions of mercury salts when added separately to emulsions, even in infinitely small proportions, are yet more or less detrimental to each degree of the image-forming dark tones, and they reduce the sensitivity in an objectionable technical manner, so that their natural weakening capacity cannot be used completely for the purpose of eliminating fog. Solutions of gold salts added in small quantities to ready made emulsions transform generally the types of yellow fogging into grey fogging, and often increase simultaneously the sensitivity, together with increasing risk of fogging effect produced by themselves. In printing out emulsions, it has yet been proposed to add these salts for toning purposes.

The object of the present invention now consists in using simultaneously additions of gold salts and mercury salts, obviously under appropriate proportioning, as well for both salts with respect to each other as with relation to the quantity of silver halide of the emulsion, said addition constituting a means surprisingly active against yellow and grey fogging, particularly in emulsions used in tropics.

By such means, the black tones are not weakened, on the contrary they are often intensified. No real toning effect is produced, or if any, it is in the direction of the principal tone. Furthermore, there is no loss in the total sensitivity against white light, as the gold-mercury solution practically sensitizes for short waves and desensitizes for long waves in an equivalent way, so that only for instance orthochromatic emulsions or generally such emulsions in which the sensitivity portion for long wave light is reduced to a proportionately more considerable extent, need a complementary addition of the appropriate and known sensitizing dyes as compensation.

Obviously, it is possible to introduce both salts within the emulsion by adding in any place to another constitutive element of the image support, such as to the raw paper or raw film, a

baryta coating, a substratum, an anti-stress coating or a protecting layer of any other kind, care being taken to properly apportioning both salts in accordance with their respective diffusion speed.

Example. — 1 gram of mercury cyanide $\text{Hg}(\text{CN})_2$ is dissolved in 10 liters of water, as also 1 gram of gold hydrochloric acid (HAuCl_4) in 1 liter of water; to such quantity of cast ready emulsion which corresponds to about 100 grams of treated silver nitrate, is added 30 to 75 c. cm. of mercury salts and 30 to 50 c. cm. of gold salt solution, and then is proceeded to casting the emulsion as usual.

I claim:

1. The process of manufacturing photographic silver halide developing emulsions durably free from grey and yellow fogging and of durable quality, in which a mixture of soluble gold salts and mercury salts are added in very small proportion to a supporting element for the emulsion, said supporting element comprising a layer of such composition and local application as to permit the gold-mercury salts to pass automatically into the emulsion by solution or diffusion.

2. The process of manufacturing photographic silver halide developing emulsions durably free from grey and yellow fogging and of durable quality, in which a mixture of soluble gold salts and mercury salts are added in very small proportion to a protecting layer of such composition and local application as to permit the gold-mercury salts to pass automatically into the emulsion by solution or diffusion.

3. A process of manufacturing photographic silver halide developing emulsions durably free from grey and yellow fogging and of durable quality, comprising incorporating a mixture of soluble gold and mercury salts in very small proportion into the emulsion.

4. A process of manufacturing photographic silver halide developing emulsions durably free from grey and yellow fogging and of durable quality, comprising incorporating a mixture of soluble auric and mercuric salts in very small proportion into the emulsion.

5. A process of manufacturing photographic silver halide developing emulsions durably free from grey and yellow fogging and of durable quality, comprising incorporating a mixture of water-soluble auric and mercuric salts in very small proportion into the emulsion.

6. A process of manufacturing photographic silver halide developing emulsions durably free from grey and yellow fogging and of durable

quality, comprising incorporating soluble gold and mercury salts in very small proportion into the emulsion, the quantity of mercury salt being of the order of 0.003-0.0075% and the quantity of gold salt being of the order of 0.03-0.05% of the treated silver halide.

5 7. A process of manufacturing photographic silver halide developing emulsions durably free from grey and yellow fogging and of durable 10 quality, comprising incorporating soluble auric and mercuric salts in very small proportion into the emulsion, the quantity of mercury salt being of the order of 0.003-0.0075% and the quantity

of gold salt being of the order of 0.03-0.05% of the treated silver halide.

8. A process of manufacturing photographic silver halide developing emulsions durably free from grey and yellow fogging and of durable 5 quality, comprising incorporating a mixture of water-soluble auric and mercuric salts in very small proportion into the emulsion, the quantity of mercury salt being of the order of 0.003-0.0075% and the quantity of gold salt being of 10 the order of 0.03-0.05% of the treated silver halide.

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