as a means of improving such failings, but these materials must be added in large quantities in order to present any changes from occurring in performance with the passage of time and it has been impossible to avoid the various adverse effects which these materials have on the photographic performance of the material. Actual examples of such adverse effects include a lowering of the maximum density of the positive image as a result of an action of development inhibitor and an increase in re-reversal image sensitivity and, moreover, action of obstructing the adsorption of the sensitizing dyes which ar often used in silver halide emulsions to improve spectral sensitivity and impede any increase in spectral sensitivity by these compounds. So the discovery of a technique with which these adverse effects could be avoided and with which stability with respect to time could be improved is also desirable.

On the basis of the facts outlined above, it is clearly difficult to obtain easily direct positive photosensitive materials which, in addition to having a satisfactory maximum image density, have excellent resolving power and stability with respect to the passage of time, irrespective of whether the conventional techniques are employed individually or conjointly.

The object of this invention is to provide direct positive photosensitive materials which have good storage properties and which, more precisely, have excellent storage properties under conditions of high temperature and high humidity.

Moreover, the invention provides direct positive photosensitive materials and a method of forming direct positive images with which it is possible to obtain direct positive images which have a high maximum image density and a high resolving power.

Moreover, the invention provides direct positive photosensitive materials and a method of forming direct positive images with which it is possible to form direct positive images with a sufficiently high color density even when processed with a highly stable low pH developer.

DISCLOSURE OF THE INVENTION

It has been discovered that the above mentioned objects can be achieved by means of (1) direct positive photographic photosensitive materials of which the distinguishing feature is that at least one type of compound (referred to below as an FR compound) which releases fogging agent or development accelerator (referred to below as FA) or a precursor thereof in accordance with the amount of silver developed when the silver halide is being developed is included in a direct positive photographic material comprising at least one photographic emulsion layer which contains internal latent image type silver halide grains which have not been prefogged on a support, and (2) a method of forming direct positive images of which the distinguishing features are that in a method for the formation of direct positive images in which a direct positive photographic photosensitive materials comprising at least one layer of non-pre-fogged internal latent image forming silver halide emulsion on a support is processed, after imagewise exposure, in a surface developer, at least one type of FR compound which releases fogging agent or development accelerator or precursors thereof is included in the said photographic material, and that the said photosensitive material is subjected to a fogging process and to a development process during and/or after the fogging process.

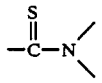
As a result of various studies carried out with a view to achieving the above mentioned objects, the inventors discovered that they could be achieved with unexpected effectiveness by using an FR compound and the invention is based upon this discovery.

Conventionally, FR compounds have been used principally in films for color photography in order to provide photographs which have a high maximum image density and gradation, and their use in color printing papers (color papers) has also been proposed (for example, see Japanese Patent Application (OPI) No. 150845/82). However, both of these cases involve negative emulsions in which the latent image is formed mainly on the surfaces of the silver halide grains and while these compounds have long been known to have the effect of increasing maximum image density it has not been realized that the inherent technical problems of internal latent image type direct positive emulsions in which the latent image is formed principally within the silver halide grains as described earlier (for example improvement of the resolving power and the storage properties of the photosensitive material etc.) could be resolved by means of FR compounds.

MODE OF EXECUTION OF THE INVENTION

The FR compounds of the invention can be added to any photographic layer but the addition of these compounds to the photographic emulsion layer is preferred.

Moreover, reducing compounds (hydrazines, hydrazides, hydrazones, hydroquinone, catechol, p-aminophenols, p-phenylenediamines, 1-phenyl-3-pyrazolidinone, enamines, aldehydes, polyamines, acetylenes, aminoboranes and quaternary salts of carbazinic acids such as tetrazolium salts, ethylenebispyridinium salts etc.) and compounds which can form silver sulfide during development (for example compounds which have



as part of their structure, such as thiourea, thioamides, dithiocarbamates, rhodanine, thiohydantoin, thiazolidinethiones) etc. can be used as the fogging agent or development accelerator (FA).

The FR compounds which can be used in the invention include the following:

(i) Couplers which couple with the oxidation products of primary aromatic amine developing agents and release FA compounds or precursors thereof.

(ii) Couplers which couple with the oxidation products of primary aromatic amine developing agents to form diffusible coupling products and with which the said coupling products function as FA compounds or precursors thereof.

(iii) Redox compounds which release FA compounds or precursors thereof by way of an oxidation-reduction reaction with the oxidation products of the primary aromatic amine developing agent or by way of a later continuation of the said reaction.

The above mentioned compound types (i), (ii) and (iii) can be represented respectively by the general formulae [1], [2] and [3] below:

$$Cp—(TIME)_n—FA \quad (1)$$

$$BALL—Cp—(TIME)_n—FA \quad (2)$$