

Film forming material and preparation of surface relief and optically anisotropic structures by irradiating a film of the said material

Filmbildendes Material und Herstellung von Oberflächenrelief- und optisch anisotropen Strukturen durch Bestrahlen eines Films des filmbildenden Materials

Matériau filmogène et préparation de structures à relief de surface et optiquement anisotropiques par irradiation du film formé à partir de ce matériau filmogène

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## Application

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### Priority

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Abstract (en)

The present invention relates to a film-forming, photoactive material comprising a complex prepared from (a) at least one ionic photosensitive compound which may undergo a photoreaction, selected from photoisomerizations, photocycloadditions and photoinduced rearrangements, wherein the photosensitive compound is of formula I or formula II  $[R-P-R']^n + n/x A^x$  (I) or  $n/x A^x + [R-P-R']^n$  (II) wherein P is a group capable of photoisomerization, and R and R' are independently selected from optionally substituted or functionalised aryl-containing groups at least one of which is positively or negatively charged, A is an oppositely charged cation or anion, n is an integer, and x is 1, 2 or 3, and/or the photosensitive compound is of formula III or IV:  $[R^1-Q-R^1']^n + n/x A^x$  (III) or  $n/x A^x + [R^1-Q-R^1']^n$  (IV) wherein Q is a group capable of participating in a photocycloaddition or photoinduced rearrangement reaction, and R<sup>1</sup> and R<sup>1'</sup> are independently selected from optionally substituted or functionalized groups having electron-accepting properties and optionally substituted or functionalized aryl-containing groups and from such groups which together with Q form an aryl ring or heteroaryl ring, wherein either at least one of R<sup>1</sup> and R<sup>1'</sup> is positively or negatively charged or the ring structure and/or a substituent thereon will carry at least one positive or negative charge, wherein A, n and x are defined as for formulae I and II, with the proviso that in all compounds of formulae (I) to (IV) contained in one complex, the charge of [R-P-R'] and/or [R<sup>1</sup>-Q-R<sup>1'</sup>] has the same sign, and (b) at least one polyelectrolyte carrying charges which are opposite to those of the active groups [R-P-R'] and/or [R<sup>1</sup>-Q-R<sup>1'</sup>] of the photosensitive material. If films prepared from this material are homogeneously or heterogeneously irradiated with polarized light, optical anisotropy and/or a surface relief structure may be reversibly or irreversibly induced in/on the films, depending on specific parameters detailed in the specification.

IPC 8 full level

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