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(54) Title: NANOCOMPOSITE MATERIAL FOR THE PRODUCTION OF INDEX OF REFRACTION GRADIENT FILMS

(54) Bezeichnung: NANOKOMPOSITMATERIAL ZUR HERSTELLUNG VON BRECHZAHLAGRADIENTENFOLIEN

(57) Abstract: The invention relates to solid or gel-type nanocomposite material which can be polymerised, containing a) 4.9-95.9 wt. % of a soluble polymer; b) 4-95 wt. % of a partially or totally condensed silane selected from the group of epoxyalkoxysilanes, alkoxysilanes and alkylalkoxysilanes, the silane having an inorganic condensation degree of between 33-100 % and an organic conversion degree of between 0-95 %; c) 0-60 wt. % of an acrylate; d) 0.1-50 wt. % of surface modified nanometric particles selected from the group of oxides, sulphides, selenides, tellurides, halogenides, carbides, arsenides, antimonides, nitrides, phosphides, carbonates, carboxylates, phosphates, sulphates, silicates, titanates, zirconates, aluminates, stannates, plumbates and a mixed oxides; e) 0-50 wt. % of a plasticiser; f) 0-5 wt. % of a thermal or photochemical cross-linking initiator, sensitizer, auxiliary wetting agent, adhesive agent, antioxidant, stabiliser, colouring agent, photochrome material and thermochrome material in relation to the total weight (dry weight) of the nanocomposite material.

(57) Zusammenfassung: Polymerisierbares, festes oder gelartiges Nanokompositmaterial, enthaltend a) 4,9 bis 95,9 Gew.-% eines löslichen Polymer; b) 4 bis 95 Gew.-% eines partiell oder vollständig kondensierten Silans aus der Epoxyalkoxysilane, Alkoxysilane und Alkylalkoxysilane, wobei das Silan einen anorganischen Kondensationsgrad von 33 bis 100 % und einen organischen Konversionsgrad von 0 bis 95 % aufweist; c) 0 bis 60 Gew.-% eines Acrylats; d) 0,1 bis 50 Gew.-% oberflächenmodifizierter nanoskaliger Teilchen aus der Gruppe der Oxide, Sulfide, Selenide, Telluride, Halogenide, Carbide, Arsenide, Antimonide, Nitride, Phosphide, Carbonate, Carboxylate, Phosphate, Sulfate, Silikate, Titanate, Zirkonate, Aluminate, Stannate, Plumbate sowie Mischoxide davon; e) 0 bis 50 Gew.-% eines Weichmachers; f) 0 bis 5 Gew.-% eines thermischen oder photochemischen Vernetzungsinitiators, Sensitizer, Netzhilfsmittel, Adhäsionshilfsmittel, Antioxidantien, Stabilisatoren, Farbstoffe, photochromen und thermochromen Stoffe, jeweils bezogen auf das Gesamtgewicht (Trockengewicht) des Nanokompositmaterials.

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