受験番号：36IPC009

問１．

[0003]

In recent years, in the production process of a liquid crystal display panel, due to a peeling electrification voltage generated when a surface protective film affixed on an optical film is peeled off and removed, destruction of circuit components, such as driver ICs, for controlling the display screen of the liquid crystal display panel and damage to the alignment of liquid crystal molecules have occurred, although the number of occurrences is small.

In addition, in order to reduce the power consumption of liquid crystal display panels, the drive voltage of liquid crystal materials is lowered, and accordingly, the breakdown voltage of driver ICs is also lowered. Recently, it is demanded that the peeling electrification voltage be in a range of +0.7 kV to −0.7 kV.

Therefore, when the surface protective film is peeled from the adherend, namely the optical film, in order to prevent problems resulting from a high peeling electrification voltage, a surface protective film using an adhesive layer containing an antistatic agent for suppressing the peeling electrification voltage to a low level is proposed.

問２．

[0043]

Contrary to such conventional technical knowledge, the present inventors focus on the fact that the magnetic phase transition itself is an inherent physical property that reflects the crystal structure and composition of the magnetic phase in the material, and conceive using the measured value of the magnetic phase transition as an index (structural data) that reflects the ″structure″ such as crystal structure and composition, rather than an index (characteristic data) for determining the merits and demerits of the ″characteristics″ of the material.

As will be described later, the acquisition of information on ″magnetic phase transition″, that is, ″feature amount based on the magnetization temperature dependence″, is less subject to fluctuations in data quality due to the individual skill of the data collector, and the data can be acquired mechanically. Use of such a measured value as the feature amount of the ″structure″ enables construction of mathematical models that could not be constructed from conventional databases, and is expected to promote material development through materials informatics.

問３.

[0059]

[Storage stability]

The ink composition that had been passed through a membrane filter with a pore diameter of 10 μm was charged in a sample bottle and left at 60° C for one week. Then, the ink composition was passed through a metal filter with a pore diameter of 10 μm (area: 0.8 mm^2, thickness: 10 μm), and evaluated for its storage stability by the foreign matter generation state. Evaluation criteria are described below.

[0060]

[Intermittency characteristic]

An ink cartridge was filled with the ink composition obtained above and installed in an inkjet printer (manufactured by Company S). Then, the ink composition was filled into a printer head by using a printer driver. It was confirmed that there were no clogged nozzles and normal recording was possible.

[0061]

After driving the carriage for 5.0 seconds without ejection of ink, ink droplets were ejected onto an intermediate transfer medium (manufactured by Company C). The operating environment of the printer was 23° C and 50 RH%. The number of misfiring nozzles was measured, and the intermittency characteristic was evaluated according to the following evaluation criteria.

問４.

[Claim 1]

A substrate-sensitive membrane material comprising:

a polymer compound containing a carboxyl group-containing poly(meth)acrylamide and/or an ester group-containing poly(meth)acrylamide in which at least part of the carboxyl groups are ester-bonded to hydroxyl groups of cyclodextrin, and

a biologically functional substance that oxidizes and reduces a substrate by a redox reaction.

[Claim 8]

The substrate-sensitive membrane material according to claim 1, wherein a membrane composition containing the polymer compound, the biologically functional substance, and a medium is formed into a membrane, and pores are formed by removing the medium from the membrane.

[Claim 10]

A non-aqueous redox biosensor comprising a working electrode and a reference electrode, the

working electrode being obtained by forming the non-aqueous redox reaction field forming material according to claim 9 into a membrane on an electrode substrate, and coating, on the membrane, a substrate-sensitive film with the biologically functional substance being fixed and the polymer compound being exposed.

[Claim 16]

A method for measuring a substrate concentration, comprising:

forming the non-aqueous redox reaction field forming material according to claim 3 into a membrane on an electrode substrate to coat a working electrode, and immersing the coated working electrode and a reference electrode into a non-aqueous solution containing a substrate to be oxidized and reduced and an organic solvent, and measuring an oxidation-reduction potential.