15 minute Do-It-Yourself Electroluminescence







ELECTROLUMINESCENCE

Electroluminescence is light emission of phosphor when it is placed in a strong electric field. This field is created by placing a dielectric (non conductive) layer between two electrodes. The field strength is affected by the voltage, distance between electrodes and the dielectric properties of the dielectric layer.



PROBLEM

Current do-it-yourself (DIY) solutions for the creation of electroluminescent panels require more than two hours for the creation of a custom design and have a significant chance of failure. These factors make it an unappealing material to work with.

GOAL

Develop an easier construction method for DIY electroluminescent panels that takes less time and has a high success rate, with similar result as existing construction methods.

SOLUTION

Combining phosphor powder with UV curable adhesive creates an mixture that can cure in a matter of seconds. This mixture can be spread across a piece of vinyl, placed on an electrode and with a cut-out of the required design. When placed underneath UV light, oxygen inhibition prevents the outer layer of the mixture to cure. The second electrode can now be attached and after a final curing process the panel is ready to use.

This method enables it to construct an electroluminescence device within 15 minutes.

Randy Wajwakana C Electroluminescence: A 15 minute Do-It-Yourself method 28/11/2017 Integrated Product Design

Committee Prof. Dr. Ir. K.M.B. Jansen Prof. Dr. S.C. Pont



Faculty of Industrial Design Engineering

Delft University of Technology