

Title (en)
ROOM TEMPERATURE METHOD FOR THE PRODUCTION OF ELECTROTECHNICAL THIN LAYERS, AND A THIN LAYER SEQUENCE OBTAINED FOLLOWING SAID METHOD

Title (de)
RAUMTEMPERATUR-VERFAHREN ZUR HERSTELLUNG ELEKTROTECHNISCHER DÜNNSCHICHTEN UND VERFAHRENSGEMÄSS ERHALTENE DÜNNSCHICHTFOLGE

Title (fr)
PROCÉDÉ À TEMPÉRATURE AMBIANTE POUR LA PRODUCTION DE COUCHES MINCES ÉLECTROTECHNIQUES ET SUCCESSION DE COUCHES MINCES OBTENUES SELON LE PROCÉDÉ

Publication
EP 3262675 A1 20180103 (DE)

Application
EP 16723636 A 20160226

Priority
• DE 102015102801 A 20150226
• DE 102015015435 A 20151202
• DE 102015015600 A 20151206
• DE 2016100083 W 20160226

Abstract (en)
[origin: WO2016134704A1] A disadvantage of classic, printed PV film cells is that the production of these cells frequently calls for expensive vacuum preparations and thermal tempering or sintering steps, wherein the thin, doped vacuum-films are highly susceptible to corrosion and contamination. Thus the aim of the invention is to overcome these disadvantages and to provide a suitable method and an appropriate PV film structure. This aim is achieved by means of a room temperature method in which aqueous dispersions are printed onto a substrate and cured by an accompanying reaction. The accompanying reaction forms gradients and also nanoscale structures at the film boundaries, which produce a PV active film having standard performance and a higher stability. At around 10% efficiency, stability and no initial loss in performance in the climatic chamber test can be obtained and over a 20 year test period, consistently less fluctuation can be achieved. The method is free from tempering or sintering steps, enables the use of technically pure, advantageous starting materials and makes the PV film structure available as a finished, highly flexible cell for a fraction of the typical investment in production or distribution. For the first time, PV film structures can be produced completely analogously to the manufacture of a printed product. Therefore, the invention can offer an extremely versatile applicability with regard to both production and use in all fields in which established PV thin-films were previously rejected as too expensive or too instable.

IPC 8 full level
H01L 21/20 (2006.01); **H01L 21/36** (2006.01)

CPC (source: CN EP RU US)
H01G 9/2004 (2013.01 - US); **H01G 9/2009** (2013.01 - EP); **H01G 9/2095** (2013.01 - US); **H01L 21/02422** (2013.01 - CN EP US); **H01L 21/02601** (2013.01 - CN EP US); **H01L 21/02628** (2013.01 - CN EP US); **H01L 21/20** (2013.01 - RU); **H01L 31/02** (2013.01 - US); **H01L 31/03926** (2013.01 - EP); **H01L 31/046** (2014.12 - EP US); **H01L 31/0463** (2014.12 - EP); **H10K 71/40** (2023.02 - EP); **H01G 9/2095** (2013.01 - EP); **Y02E 10/542** (2013.01 - EP); **Y02E 10/549** (2013.01 - EP); **Y02P 70/50** (2015.11 - EP)

Citation (search report)
See references of WO 2016134703A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
WO 2016134704 A1 20160901; BR 112017018306 A2 20180417; BR 112017018306 B1 20230110; CN 107466422 A 20171212; CN 107466422 B 20210319; CN 107533950 A 20180102; CN 107533950 B 20220211; DE 102016002213 A1 20161103; EP 3262673 A1 20180103; EP 3262675 A1 20180103; JP 2018509762 A 20180405; JP 2018521443 A 20180802; JP 2021177549 A 20211111; JP 2021177552 A 20211111; JP 2023067932 A 20230516; RU 2017131189 A 20190328; RU 2017131189 A3 20190717; RU 2017131197 A 20190328; RU 2017131197 A3 20190620; RU 2698739 C2 20190829; RU 2732867 C2 20200924; US 11935976 B2 20240319; US 2018040432 A1 20180208; US 2018040751 A1 20180208; US 2022052214 A1 20220217; WO 2016134703 A1 20160901

DOCDB simple family (application)
DE 2016100084 W 20160226; BR 112017018306 A 20160226; CN 201680022156 A 20160226; CN 201680023159 A 20160226; DE 102016002213 A 20160226; DE 2016100083 W 20160226; EP 16715440 A 20160226; EP 16723636 A 20160226; JP 2017545667 A 20160226; JP 2017545677 A 20160226; JP 2021078265 A 20210506; JP 2021095505 A 20210608; JP 2023031398 A 20230301; RU 2017131189 A 20160226; RU 2017131197 A 20160226; US 201615554055 A 20160226; US 201615554064 A 20160226; US 202117515474 A 20211031