

Title (en)  
METHOD FOR THE PRODUCTION OF STRETCHABLE ELECTRODES

Title (de)  
VERFAHREN ZUR HERSTELLUNG VON DEHNBAREN ELEKTRODEN

Title (fr)  
PROCÉDÉ DE RÉALISATION D'ÉLECTRODES EXTENSIBLES

Publication  
**EP 2457277 A1 20120530 (DE)**

Application  
**EP 10735201 A 20100714**

Priority  
• EP 09009472 A 20090722  
• EP 2010004283 W 20100714  
• EP 10735201 A 20100714

Abstract (en)  
[origin: EP2284933A1] The method for producing stretchable electrodes with a surface layer (1, 2) containing electrically conductive carbon particles, comprises contacting surface layer of an elastomer with preparation of non-aggregated carbon particles, where the elastomer is provided with glass transition temperature (T<sub>g</sub>) of -130[deg] C to 0 [deg] C and the preparation of carbon particles has an average particle diameter of 0.3-3000 nm in a solvent, which causes swelling of the surface layer of the elastomer, and impinging the preparation of the carbon particles on the surface layer of the elastomer for a time period. The method for producing stretchable electrodes with a surface layer (1, 2) containing electrically conductive carbon particles, comprises contacting surface layer of an elastomer with a preparation of non-aggregated carbon particles, where the elastomer is provided with a glass transition temperature (T<sub>g</sub>) of -130[deg] C to 0 [deg] C and the preparation of the carbon particles has an average particle diameter of 0.3-3000 nm in a solvent, which causes a swelling of the surface layer of the elastomer, impinging the preparation of the carbon particles on the surface layer of the elastomer for a time period, which is insufficient to dissolve the elastomer in the solution, ending the impingement of the preparation of the carbon particles on the surface layer of the elastomer, and applying an additional electrically conducting layer (4, 5) on the surface layer, where the obtained electrically conducting layer breaks or tears during stretching the surface layer. The impingement of the preparation of the carbon particles on the surface layer of the elastomer occurs under the use of ultrasound and/or heat. The carbon particles are carbon nanotubes, single-walled carbon nanotubes, multi-walled carbon nanotubes, carbon nanohorns, carbon nano-onions, fullerene, graphite, graphene, carbon fibers, carbon black and/or carbon black. The surface layer of the elastomer is covered by a mask. An independent claim is included for a stretchable electrode.

IPC 8 full level  
**H01M 4/04** (2006.01); **H01M 4/62** (2006.01); **H01M 4/66** (2006.01)

CPC (source: EP KR US)  
**H01G 11/32** (2013.01 - EP US); **H01M 4/04** (2013.01 - KR); **H01M 4/13** (2013.01 - EP US); **H01M 4/139** (2013.01 - EP US); **H01M 4/62** (2013.01 - KR); **H01M 4/621** (2013.01 - EP US); **H01M 4/622** (2013.01 - EP US); **H01M 4/625** (2013.01 - EP US); **H01M 4/64** (2013.01 - KR); **H01M 4/663** (2013.01 - EP US); **H10N 30/06** (2023.02 - EP US); **H10N 30/878** (2023.02 - EP US); **Y02E 60/10** (2013.01 - EP); **Y02E 60/13** (2013.01 - US); **Y10T 428/31678** (2015.04 - EP US)

Citation (search report)  
See references of WO 2011009549A1

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 SE SI SK SM TR

DOCDB simple family (publication)  
**EP 2284933 A1 20110216**; AU 2010275788 A1 20120209; CA 2768677 A1 20110127; CN 102498595 A 20120613; EP 2457277 A1 20120530; IN 600DEN2012 A 20150612; JP 2012533857 A 20121227; KR 20120047261 A 20120511; RU 2012106077 A 20130827; SG 177487 A1 20120228; TW 201126795 A 20110801; US 2012177934 A1 20120712; WO 2011009549 A1 20110127

DOCDB simple family (application)  
**EP 09009472 A 20090722**; AU 2010275788 A 20100714; CA 2768677 A 20100714; CN 201080033482 A 20100714; EP 10735201 A 20100714; EP 2010004283 W 20100714; IN 600DEN2012 A 20120120; JP 2012520929 A 20100714; KR 20127004194 A 20100714; RU 2012106077 A 20100714; SG 2012000261 A 20100714; TW 99123898 A 20100721; US 201013384300 A 20100114