

Title (en)
Thermionic cathode and manufacturing method

Title (de)
Thermionische Kathode und Verfahren zu ihrer Herstellung

Title (fr)
Cathode thermoionique et son procédé de fabrication

Publication
EP 0794548 A1 19970910 (FR)

Application
EP 97400472 A 19970228

Priority
FR 9602743 A 19960305

Abstract (en)
A thermionic cathode, for an electron tube, includes a substrate (12) of refractory metal, a compound (14) of an element which forms the single emission layer (18) and a reducing agent (16) which reacts with the compound (14) at the cathode operating temperature to release the emission layer-forming element. The novelty is that the compound is selected from rare earth zirconates, hafnates, aluminates and berylates. Preferably, the compound (14) is neodymium zirconate, lanthanum zirconate, cerium aluminate or a mixture of rare earth compounds and the reducing agent comprises one or more refractory metal carbides. Also claimed is the production of the above cathode by (a) mixing and melting a metal oxide powder and one or more rare earth metal oxide powders under vacuum or hydrogen to produce the compound (14); and, after cooling to the solid state, (b) crushing and grinding to obtain a powder of certain particle size.

Abstract (fr)
L'invention concerne les cathodes thermoioniques pour tubes électroniques comprenant un matériau comportant un substrat (12), un composé (14) d'un élément faisant monocouche (18) émettrice, choisi parmi les zirconates de terres rares, les hafnates de terres rares, les aluminates de terres rares, les bérylates de terres rares et un agent réducteur (16) qui à la température de fonctionnement de la cathode réagit avec le composé (14) libérant l'élément faisant monocouche (18). Application notamment aux tubes électroniques à grille. <IMAGE>

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H01J 1/14

IPC 8 full level
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H01J 1/14 (2013.01 - EP US)

Citation (search report)
• [A] US 1794298 A 19310224 - ALEXANDER JUST
• [A] GB 182817 A 19230809 - DRAHTLOSE TELEGRAPHIE GMBH
• [A] DE 581423 C 19330727 - AEG
• [A] EP 0210805 A2 19870204 - MITSUBISHI ELECTRIC CORP [JP]
• [A] US 2218381 A 19401015 - HENRICUS GOOSKENS

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