

Title (en)  
BATTERY CATHODE

Title (de)  
BATTERIE KATHODE

Title (fr)  
CATHODE DE PILE

Publication  
**EP 1042829 A4 20040714 (EN)**

Application  
**EP 98963897 A 19981214**

Priority  
• US 9826490 W 19981214  
• US 182297 A 19971231  
• US 5492898 A 19980403

Abstract (en)  
[origin: WO9934462A1] A cathode (12) that includes manganese dioxide and relatively small particles of nonsynthetic, nonexpanded graphite is disclosed. The graphite particles can have an average particle size of less than 20 microns. The cathode (12) can be used in an electrochemical cell, such as a battery (10).

IPC 1-7  
**H01M 4/30; H01M 4/62**

IPC 8 full level  
**H01M 4/06** (2006.01); **H01M 4/24** (2006.01); **H01M 4/50** (2010.01); **H01M 4/62** (2006.01); **H01M 6/06** (2006.01); **H01M 6/08** (2006.01); **H01M 50/414** (2021.01); **H01M 50/429** (2021.01); **H01M 50/449** (2021.01); **H01M 50/491** (2021.01); **H01M 4/02** (2006.01)

CPC (source: EP US)  
**H01M 4/244** (2013.01 - EP); **H01M 4/50** (2013.01 - EP); **H01M 4/625** (2013.01 - EP); **H01M 6/08** (2013.01 - EP); **H01M 50/414** (2021.01 - EP US); **H01M 50/429** (2021.01 - EP US); **H01M 50/491** (2021.01 - EP US); **H01M 50/44** (2021.01 - EP); **H01M 2004/028** (2013.01 - EP); **Y02E 60/10** (2013.01 - EP)

Citation (search report)  
• [X] TAKEDA K: "OPTIMIZING THE PARAMETERS OF CELL EXPANSION IN ALKALINE MANGANESE DIOXIDE BUTTON CELLS", JOURNAL OF POWER SOURCES, ELSEVIER SEQUOIA S.A. LAUSANNE, CH, vol. 32, no. 1, 1 July 1990 (1990-07-01), pages 9 - 17, XP000160866, ISSN: 0378-7753  
• [X] PATENT ABSTRACTS OF JAPAN vol. 010, no. 099 (E - 396) 16 April 1986 (1986-04-16)  
• [X] PATENT ABSTRACTS OF JAPAN vol. 1996, no. 02 29 February 1996 (1996-02-29)  
• [A] PATENT ABSTRACTS OF JAPAN vol. 012, no. 330 (E - 655) 7 September 1988 (1988-09-07)  
• See references of WO 9934462A1

Designated contracting state (EPC)  
AT BE CH DE DK ES FI FR GB GR IE IT LI LU NL PT SE

DOCDB simple family (publication)  
**WO 9934462 A1 19990708**; AR 014204 A1 20010207; AU 1913299 A 19990719; CA 2313790 A1 19990708; CN 1285961 A 20010228; EP 1042829 A1 20001011; EP 1042829 A4 20040714; JP 2002500419 A 20020108; TW 398092 B 20000711

DOCDB simple family (application)  
**US 9826490 W 19981214**; AR P980106710 A 19981229; AU 1913299 A 19981214; CA 2313790 A 19981214; CN 98812838 A 19981214; EP 98963897 A 19981214; JP 2000526986 A 19981214; TW 87121895 A 19981230