Title (en)

Improved electrolytic process for the production of ozone.

Title (de)

Elektrolytisches Verfahren zur Herstellung von Ozon.

Title (fr)

Procédé électrolytique de production d'ozone.

Publication

EP 0041365 A1 19811209 (EN)

Application

EP 81302353 A 19810528

Priority

- US 15458480 A 19800529
- US 26315581 A 19810521

Abstract (en)

Very high yields of ozone are produced in an electrolytic process. As high as 52% current efficiencies are secured in electrolytic cells wherein the electrolyte is water and highly electronegative anions. Anions having a so-called "composite electronegativity" of 17.5 or higher, are utilized in the electrolyte solution. The fluoro-anions and in particular, the hexafluoro-anions are especially preferred. The anion producing compounds may be added to the electrolyte either in the acid form or in the form of salts. Electrolysis is carried out at room temperatures or at lower temperatures, e.g. down to the freezing point of water. Preferred anode materials for use in the electrolytic cells are either platinum, lead dioxide, especially lead dioxide in the beta crystalline form, or glassy carbon. The platinum metals, carbon, or nickel and its alloys may be used as hydrogen-evolving cathodes. Alternately, an air or oxygen depolarized cathode may be employed to greatly reduce the cell voltage and enhance the overall energy efficiency of the process.

IPC 1-7

C25B 1/00

IPC 8 full level

C25B 1/13 (2006.01)

CPC (source: EP)

C25B 1/13 (2013.01)

Citation (search report)

- SU 380106 A1 19740315
- CHEMICAL ABSTRACTS, Vol. 83, 1975, page 520, Abstract No. 105409g Columbus, Ohio (US) & Izv. Sev.-Kavk. Nauchn. Tsentra Vyssh. Shk., Ser. Tekh. Nauk. 1975, 3(1), 98-100 D.P. SEMCHENKO et al.: "Formation of Ozone on Lead Dioxide During Electrolysis of Perchloric Acid" * the whole Abstract *
- CHEMICAL ABSTRACTS, Vol. 82, 1975, page 602, Abstract No. 66161c Columbus, Ohio (US) & SU - A - 380 106 (Ordzhonikidze S. Polytechnic Institute, Novocherkassk) (March 15, 1974) * the whole Abstract *
- CHEMICAL ABSTRACTS, Vol. 92, March 24, 1980, page 478, Abstract No. 101404q Columbus, Ohio (US) & Z. Naturforsch B.: Anorg. Chem. Org. Chem. 1979, 34B(12), 1617-27 F.P. HEINZ et al.: "Electrochemical Syntheses. XVII. Ozone Synthesis by Electrolysis of Water"

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EP1340841A1; EP0470761A1; DE3432684A1; WO8601542A1

Designated contracting state (EPC)

AT BE CH DE FR GB IT NL SE

DOCDB simple family (publication)

EP 0041365 A1 19811209; **EP 0041365 B1 19850904**; DE 3172122 D1 19851010

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EP 81302353 A 19810528; DE 3172122 T 19810528