

Title (en)

Method for cooling graphite electrodes used for metal melting and refining in an electric arc furnace and a ladle

Title (de)

Verfahren zum Kühlung von Graphitelektroden für Metallschmelz- und Raffinierungsverfahren in einem Dichtbogenofen und Pfanne

Title (fr)

Procédé de refroidissement d'une électrode en graphite pour la fusion et le raffinage de métal dans un four ou poche à arc

Publication

**EP 0827365 A3 19980819 (EN)**

Application

**EP 97101716 A 19970204**

Priority

- JP 24926296 A 19960830
- JP 24926396 A 19960830

Abstract (en)

[origin: EP0827365A2] A method for cooling a vertical train of graphite electrodes (10; 36) connected to each other, by using a cooling liquid (11) sprayed onto the outer periphery surface of at least one graphite electrode (10; 36) consisting of an upper portion of said graphite electrode train, said graphite electrode train either penetrating through a cover (1) enclosing an opening of an electric arc furnace with a vessel for melting and refining a metal, such as steel or the like, and extending into said vessel, or penetrating through a cover enclosing an opening of a ladle (30) for receiving, melting and refining secondarily a metal molten and refined in a furnace, and extending into said ladle. The method is characterized by the steps of directing said cooling liquid at the upward or downward inclination ( $\theta$ ) of 0 degrees to 60 degrees with respect to the horizontal level (L-L) and spraying said cooling liquid (11) simultaneously at a flow rate ranging between 0.8 liters/minute and 40 liters/minute. <IMAGE>

IPC 1-7

**H05B 7/12**; **H05B 7/085**

IPC 8 full level

**H05B 7/085** (2006.01); **H05B 7/12** (2006.01)

CPC (source: EP)

**H05B 7/085** (2013.01); **H05B 7/12** (2013.01)

Citation (search report)

- [X] US 4941149 A 19900710 - NAKAMOTO YAKKA [JP], et al & EP 0309583 A1 19890405 - NIPPON CARBON CO LTD [JP]
- [X] PATENT ABSTRACTS OF JAPAN vol. 017, no. 473 (E - 1423) 27 August 1993 (1993-08-27)
- [A] PATENT ABSTRACTS OF JAPAN vol. 015, no. 013 (M - 1069) 11 January 1991 (1991-01-11)
- [A] PATENT ABSTRACTS OF JAPAN vol. 014, no. 357 (M - 1005) 2 August 1990 (1990-08-02)

Cited by

EP2305006A4; RU2623446C2; CN100420347C; US8837552B2; WO2004063651A1

Designated contracting state (EPC)

DE FR GB IT

DOCDB simple family (publication)

**EP 0827365 A2 19980304**; **EP 0827365 A3 19980819**; TW 330212 B 19980421

DOCDB simple family (application)

**EP 97101716 A 19970204**; TW 86101396 A 19970205