Title (en)

METHOD OF COOLING A MICROWAVE PLASMA

Title (de)

KÜHLVERFAHREN VON MIKROWELLENPLASMA

Title (fr)

PROCEDE DE REFROIDISSEMENT D'UN PLASMA MICRO-ONDE

Publication

**EP 2286641 A1 20110223 (FR)**

Application

**EP 09753765 A 20090430**

Priority

- EP 2009055264 W 20090430
- EP 08305206 A 20080528
- EP 09753765 A 20090430

Abstract (en)

[origin: EP2131633A1] The method involves partially cooling a dielectric tube (16) by a coolant flowing in thermal contact with an outer wall of the tube to be cooled. The coolant flows in a direction opposite to that of a fluid or a fluid mixture in the dielectric tube, where the coolant includes oil selected from linear alpha-polyolefins having a carbonated chain of 14 carbon atoms or 1-Tetradecene and/or perfluorocarbonated liquids having a dielectric constant lower than 2.5, a microwave absorbance comprised between 0.01 et 0.0001, and a specific heat Cp less than 0.6 gram calorie per gram degree Celsius. An independent claim is also included for a plasma processing system comprising a fluid and /or gas injection units.

IPC 8 full level

**H05H 1/46** (2006.01)

CPC (source: EP KR US)

**H05H 1/2443** (2021.05 - EP KR); **H05H 1/46** (2013.01 - EP US); **H05H 1/4622** (2021.05 - EP KR); **H05H 1/463** (2021.05 - EP KR); H05H 1/2443 (2021.05 - US); H05H 1/4622 (2021.05 - US); H05H 1/463 (2021.05 - US)

Citation (search report)

See references of WO 2009144110A1

Designated contracting state (EPC)

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 TR

Designated extension state (EPC)

AL BA RS

DOCDB simple family (publication)

**EP 2131633 A1 20091209**; EP 2286641 A1 20110223; JP 2011522691 A 20110804; KR 20110021816 A 20110304; TW 200952568 A 20091216; US 2011073282 A1 20110331; WO 2009144110 A1 20091203

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**EP 08305206 A 20080528**; EP 09753765 A 20090430; EP 2009055264 W 20090430; JP 2011510926 A 20090430; KR 20107026506 A 20090430; TW 98117230 A 20090525; US 99469509 A 20090430