

Title (en)  
METHOD FOR THE CREATION OF DROPLET TARGETS

Title (de)  
VERFAHREN ZUR ERZEUGUNG EINES TRÖPFCHEN-TARGETS

Title (fr)  
PROCEDE POUR GENERER UNE CIBLE GOUTTELETTE

Publication  
**EP 1574116 A2 20050914 (DE)**

Application  
**EP 03813077 A 20031211**

Priority  
• DE 0304129 W 20031211  
• DE 10260376 A 20021213

Abstract (en)  
[origin: WO2004056158A2] In order to effectively generate x-rays or EUV light, droplet targets must be available, which form a fog having an atomic density of  $> 10^{18}$  atoms/cm<sup>3</sup> while the dimension thereof ranges within potential wavelengths of laser beams, i.e. the diameter thereof is smaller than diameters known in prior art. The aim of the invention is to offer a solution for creating such droplet targets while the high density is to be created at a greater distance from the nozzle, i.e. the droplet target is to collimate better than in prior art in order to extend the service life of the nozzle. Said aim is achieved by a device at least comprising a receptacle which receives a target liquid and inside which a high pressure is generated by means of a non-reactive gas, an electromagnetic valve that is connected to the receptacle and switches in the millisecond range, and a nozzle. Said nozzle is embodied as a supersonic nozzle to which the valve is connected via an expansion channel. Heating means that are disposed around the expansion channel are configured such that the temperature is adjustable to a level at which an oversaturated vapor is formed inside the expansion channel, an insulator being arranged between the electromagnetic valve and the heating means. The inventive device allows highly dense liquid targets in the sub- $\mu$ m range to be created.

IPC 1-7  
**H05G 2/00**

IPC 8 full level  
**H05G 2/00** (2006.01)

CPC (source: EP US)  
**H05G 2/003** (2013.01 - EP US); **H05G 2/006** (2013.01 - EP US); **H05G 2/008** (2013.01 - EP US)

Citation (search report)  
See references of WO 2004056158A2

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

DOCDB simple family (publication)  
**WO 2004056158 A2 20040701**; **WO 2004056158 A3 20040916**; AT E363819 T1 20070615; AU 2003300494 A1 20040709; DE 10260376 A1 20040715; DE 50307397 D1 20070712; EP 1574116 A2 20050914; EP 1574116 B1 20070530; JP 2006510176 A 20060323; JP 4488214 B2 20100623; US 2006054238 A1 20060316; US 7306015 B2 20071211

DOCDB simple family (application)  
**DE 0304129 W 20031211**; AT 03813077 T 20031211; AU 2003300494 A 20031211; DE 10260376 A 20021213; DE 50307397 T 20031211; EP 03813077 A 20031211; JP 2004559610 A 20031211; US 53880205 A 20050613