

Title (en)
PROCESS FOR TREATING A WORKPIECE SUCH AS A SEMICONDUCTOR WAFER

Title (de)
VERFAHREN ZUR BEHANDLUNG EINES WERKSTÜCKS WIE Z.B. EINES HALBLEITER-WAFERS

Title (fr)
PROCEDE DE TRAITEMENT D'UNE PIECE, PAR EXEMPLE UNE PLAQUETTE DE SEMI-CONDUCTEUR

Publication
EP 1212151 A1 20020612 (EN)

Application
EP 00948892 A 20000721

Priority
• US 0020036 W 20000721
• US 14535099 P 19990723

Abstract (en)
[origin: EP1481741A2] Semiconductor wafer treatment method involves passing the heated liquid on the workpiece surface (20). The heated liquid maintains the workpiece at an elevated temperature. Ozone is introduced at the rate of more than 90 grams per hour into the chamber (15) which has the workpiece. The thickness of the liquid boundary layer formed on the workpiece through which ozone is diffused is controlled. The heated liquid solution provided on the surface is combination of water and hydrogen fluoride or hydrochloric acid. Ozone is introduced at the rate of more than 90 grams per hour with flow rate 10 lpm and concentration of 10% by weight. The deoxygenated water is the processing liquid which includes sulfuric acid, hydrochloric acid, or ammonium hydroxide. The thickness is controlled by rotating the workpiece at 1000 rpm or more, by adding surfactant to liquid or by spraying the liquid on the surface at controlled flow rate. The liquid contains solution of water and hydrogen fluoride or water and hydrochloric acid or combination of both. The concentration ratio of water to hydrogen fluoride and to hydrochloric acid is between 50:1:1 and 500:1:1. An independent claim is also included for semiconductor wafer treatment apparatus.

IPC 1-7
B08B 3/08; **B08B 3/02**; **C23G 1/00**; **C23G 1/02**; **H01L 21/306**

IPC 8 full level
H01L 21/311 (2006.01); **B08B 3/00** (2006.01); **B08B 3/02** (2006.01); **B08B 3/04** (2006.01); **B08B 3/08** (2006.01); **B08B 7/00** (2006.01); **C23G 1/00** (2006.01); **G03F 7/42** (2006.01); **H01L 21/00** (2006.01); **H01L 21/02** (2006.01); **H01L 21/304** (2006.01); **H01L 21/306** (2006.01); **H01L 21/67** (2006.01)

CPC (source: EP)
B08B 3/00 (2013.01); **B08B 3/02** (2013.01); **B08B 3/044** (2013.01); **B08B 3/08** (2013.01); **B08B 7/00** (2013.01); **G03F 7/422** (2013.01); **G03F 7/427** (2013.01); **H01L 21/02052** (2013.01); **H01L 21/31111** (2013.01); **H01L 21/31133** (2013.01); **H01L 21/67051** (2013.01); **H01L 21/6708** (2013.01); **B08B 2203/005** (2013.01); **B08B 2203/007** (2013.01); **B08B 2230/01** (2013.01)

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

DOCDB simple family (publication)
WO 0107177 A1 20010201; AT E485115 T1 20101115; DE 60045134 D1 20101202; EP 1212151 A1 20020612; EP 1212151 A4 20050817; EP 1481741 A2 20041201; EP 1481741 A3 20050817; EP 1481741 B1 20101020; JP 2004500701 A 20040108; JP 2006261685 A 20060928; JP 2007049176 A 20070222; TW 472317 B 20020111

DOCDB simple family (application)
US 0020036 W 20000721; AT 04020205 T 20000721; DE 60045134 T 20000721; EP 00948892 A 20000721; EP 04020205 A 20000721; JP 2001512043 A 20000721; JP 2006119518 A 20060424; JP 2006254509 A 20060920; TW 89114615 A 20000721