

General Etching Information

- [Dry Etch Process Library](#)
- [Si Deep Reactive Ion Etching Process Database](#)
- [Fast Oxide Reactive Ion Etching Process Database](#)
- [XeF2 Si Vapor Etching Process Database](#)

[Procedure for creating baseline wafers \(PDF\)](#)

Source: AFS

Date: 2/23/13

Dry Etch Process Library

PLEASE NOTE: *The following information suggests etch tools for specific materials. However, ([this information](#)) is not regularly updated. For up-to-date etch rates, please see specific tool pages.*

Anisotropic silicon

- Equipment: Plasmatherm PT 770 left side
- Ambient: Cl₂, BCl₃, H₂
- Etch rate (Å/min): 3000
- Selectivity: 10:1 oxide
- Substrate size: 3 inch, 100 mm

Isotropic silicon release etch

- Equipment: Plasmatherm PT 72
 - Ambient: SF₆/O₂
 - Etch rate (Å/min): 1100
 - Selectivity: 300:1 oxide
 - Substrate size: up to 200 mm
- Equipment: Oxford 80
 - Ambient: SF₆/O₂
 - Etch rate (Å/min):
 - Selectivity:
 - Substrate size: up to 200 mm

Polysilicon

- Equipment: Plasmatherm PT 770 left side
- Ambient: Cl₂, BCl₃, H₂
- Etch rate (Å/min): 1500
- Selectivity: 3:1 nitride, 7:1 oxide
- Substrate size: 3 inch, 100 mm

Silicon dioxide

- Equipment: Plasmatherm PT 72
 - Ambient: CHF₃/O₂
 - Etch rate (Å/min): 255
 - Selectivity: 2:1 resist, 5:1 silicon
 - Substrate size: up to 150 mm
- Equipment: Oxford 80
 - Ambient: CHF₃/O₂
 - Etch rate (Å/min): 300
 - Selectivity: 2:1 resist, 5:1 silicon
 - Substrate size: up to 150 mm

PSG

- Equipment: Plasmatherm PT 72
- Ambient: CHF₃/O₂
- Etch rate (Å/min): 330
- Selectivity: 2:1 resist
- Substrate size: up to 150 mm

Silicon nitride and low stress silicon nitride

- Equipment: Plasmatherm PT 72
- Ambient: CF₄/H₂
- Etch rate (Å/min): 290
- Selectivity: 2:1 resist

- Substrate size: up to 200 mm
- Equipment: Oxford 80
- Ambient: CHF3/O2
- Etch rate (A/min): 600-650 for LPCVD, 750 PECVD
- Selectivity: 3:1 resist, 4:1 Si
- Substrate size: up to 200 mm

Aluminum

- Equipment: Plasmatherm SSL-720
- Ambient: BCl3/Cl2/CH4
- Etch rate (A/min): 1500
- Selectivity: 2:1 resist
- Substrate size: up to 150 mm

Tungsten

- Equipment: Plasmatherm PT 72
- Ambient: CF4/SF6
- Etch rate (A/min): 1000
- Selectivity: NA
- Substrate size: up to 200 mm

Germanium

- Equipment: Plasmatherm PT 72
- Ambient: ?
- Etch rate (A/min): ?
- Selectivity: ?
- Substrate size: up to 200 mm

Molybdenum

- Equipment: Plasmatherm PT 72
- Ambient: CF4/SF6
- Etch rate (A/min): ?
- Selectivity: ?
- Substrate size: up to 200 mm

Photoresists

- Equipment: Plasmatherm PT 72
- Ambient: O2
- Etch rate (A/min): 1000
- Selectivity: NA
- Substrate size: up to 200 mm

Electron beam resists

- Equipment: Plasmatherm PT 72
- Ambient: O2
- Etch rate (A/min): ?
- Selectivity: NA
- Substrate size: up to 200 mm

Parylene

- Equipment: Plasmatherm PT 72
- Ambient: O2
- Etch rate (A/min): ?
- Selectivity: NA
- Substrate size: up to 200 mm

Polyimide

- Equipment: Plasmatherm PT 72
- Ambient: O2
- Etch rate (A/min): ?
- Selectivity: NA
- Substrate size: up to 200 mm

Si Deep Reactive Ion Etching Process Database

PLEASE NOTE: The following information suggests etch tools for specific materials. However, ([this information](#)) is not regularly updated. For up-to-date etch rates, please see specific tool pages.

Si Deep Bosch Etch

- Equipment: Unaxis 770
 - Ambient: Bosch chemistry
 - Etch rate (Å/min): 18000
 - Selectivity: 50:1 resist, 150:1 oxide
 - Substrate size: 3 inch, 100 mm and 150 mm
-

Fast Oxide Reactive Ion Etching Process Database

PLEASE NOTE: The following information suggests etch tools for specific materials. However, ([this information](#)) is not regularly updated. For up-to-date etch rates, please see specific tool pages.

- Equipment: Oxford 100
 - Ambient: ?
 - Etch rate (Å/min): ?
 - Selectivity: ? resist, ? oxide
 - Substrate size: 100 mm and 150 mm
-

XeF₂ Si Vapor Etching Process Database

PLEASE NOTE: The following information suggests etch tools for specific materials. However, ([this information](#)) is not regularly updated. For up-to-date etch rates, please see specific tool pages.

- Equipment: Xactix X-Etch
- Ambient: XeF₂
- Etch rate (Å/min):
- Selectivity: ? resist, ? oxide, ? metal
- Substrate size: pieces and full wafers up to 150 mm