

Polysilicon Etch Application Note

Material	Etch Gases	Reactive Species	By-product
Polysilicon	CF ₄ / SF ₆ 10% O ₂ , or Chlorine	Free fluorine or free chlorine	SiF ₄ or SiCl ₄

Polysilicon can be etched anisotropically & isotropically in chlorine gas, and it is also very selective to oxide. The table below outlines an isotropic & anisotropic etch recipe using Chlorine chemistry:

Parameter	Value	Comments
Pressure	Isotropic: 180-mtorr Anisotropic: 30-mtorr	
Power	100-watts	Low power = high selectivity = low voltage
Flow	Isotropic: 30-sccm Cl ₂ Anisotropic: 5-sccm Cl ₂ , 25-sccm HBr	
Etch Rate	Isotropic: 0.5-um/min Anisotropic: 0.3um/min	

For more information contact Trion Technology, Inc. (727)461-1888 · www.triontech.com

© 1999 Trion Technology, Inc. All rights reserved. Excerpted from Plasma Delayering of Integrated Circuits by A. Crockett and M. Almoustafa *Trion Technology, Tempe, Arizona, USA* and W. Vanderlinde *Laboratory for Physical Sciences, College Park, Maryland, USA*