Corrosão a Seco

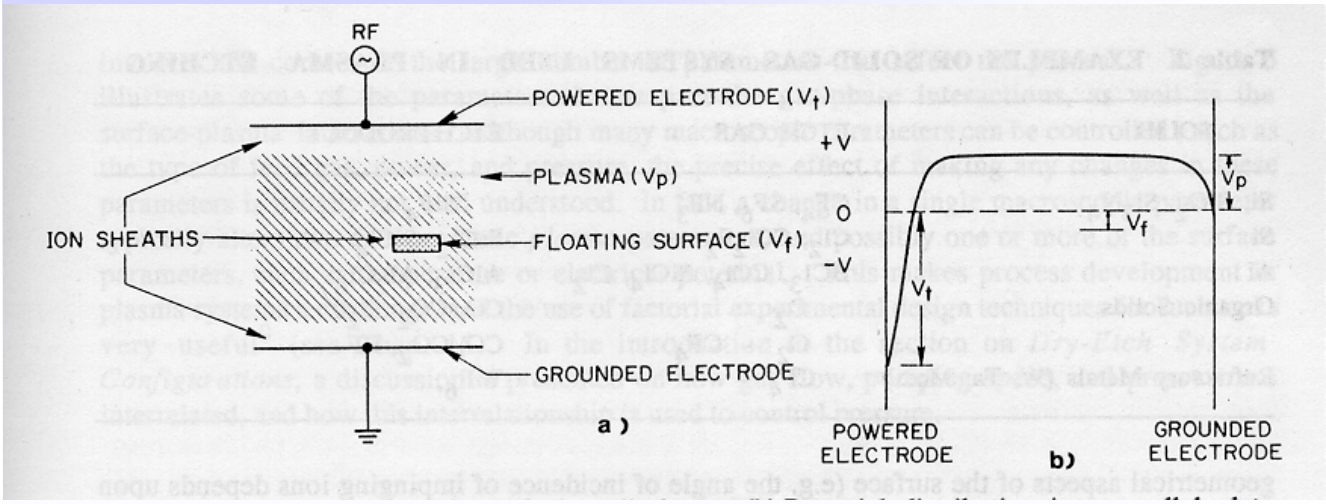
- Direcional (Anisotrópica)
- Utiliza poucos insumos
- Permite acompanhamento da evolução
- Cara e complexa

Corrosão a Seco

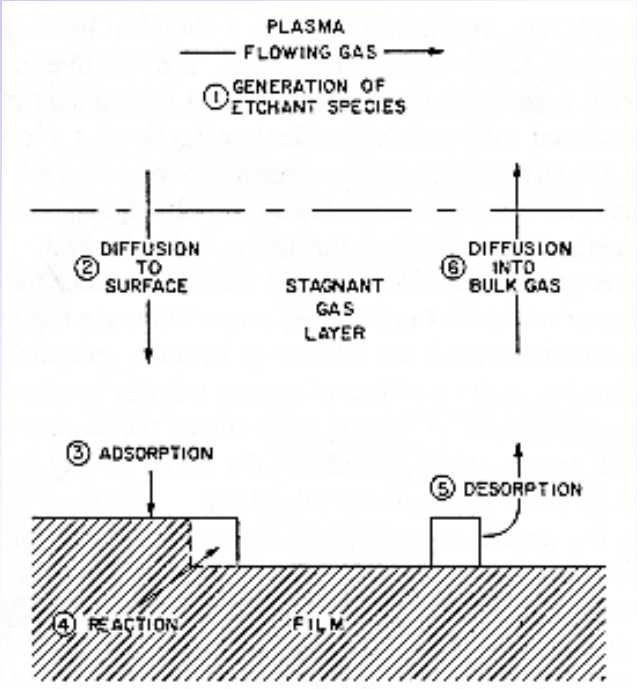
- Parâmetros (entrada)
  - Pressão
  - Fluxo
  - Potência
  - Tipo de Gás
- Resultados (saída)
  - Taxa
  - Seletividade
  - Grau de Anisotropia
  - Uniformidade

Corrosão a Seco

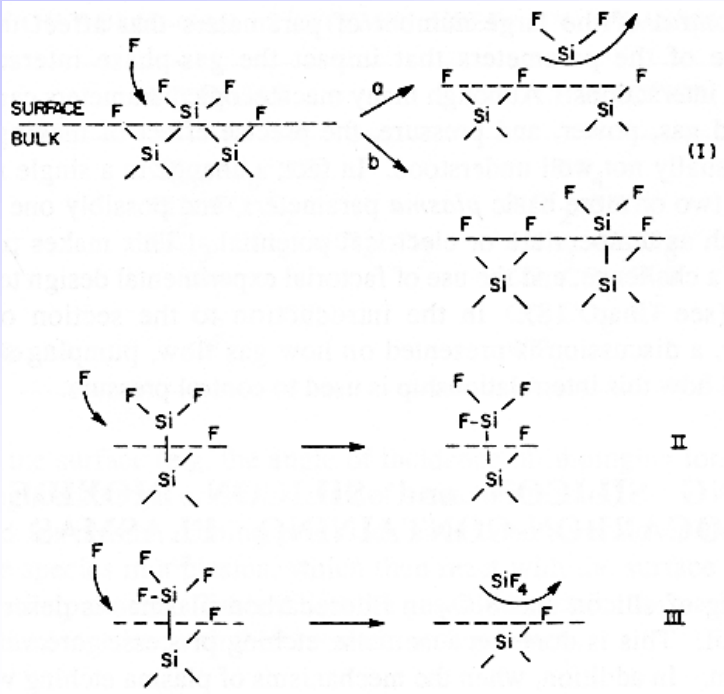
- Plasmas Frios



Processo de Corrosão a Seco



Reações Químicas



Gases de Processo

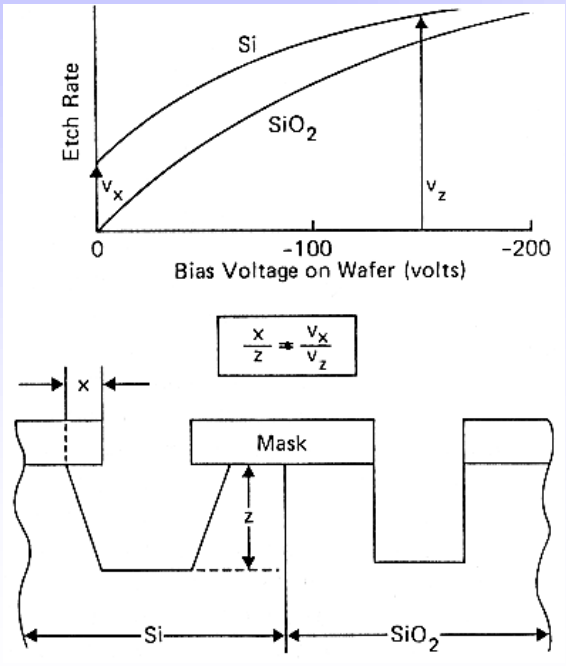
Table 2 EXAMPLES OF SOLID-GAS SYSTEMS USED IN PLASMA ETCHING

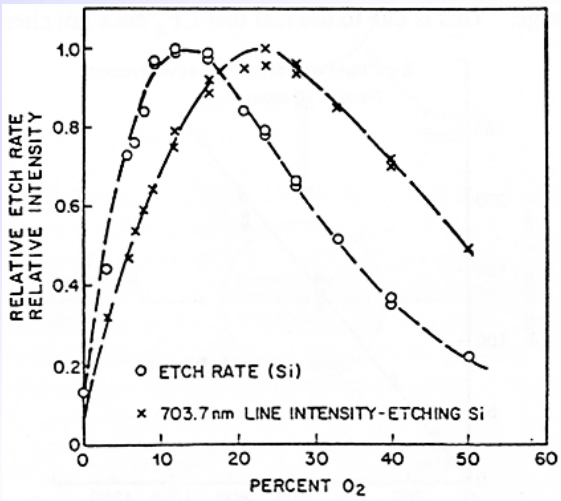
SOLID	ETCH GAS	ETCH PRODUCT
Si, SiO_2, Si_3N_4	CF_4, SF_6, NF_3	SiF_4
Si	Cl_2, CCl_2F_2	$SiCl_2$, $SiCl_4$
Al	BCl_3, CCl_4, $SiCl_4$, Cl_2	$AlCl_3$, Al_2Cl_6
Organic Solids	O_2	CO, CO_2, H_20
	O_2 + CF_4	CO, CO_2, HF
Refractory Metals (W, Ta, Mo...)	CF_4	WF_6, ...

Table 5 ETCH GASES USED FOR VARIOUS INTEGRATED CIRCUIT MATERIALS

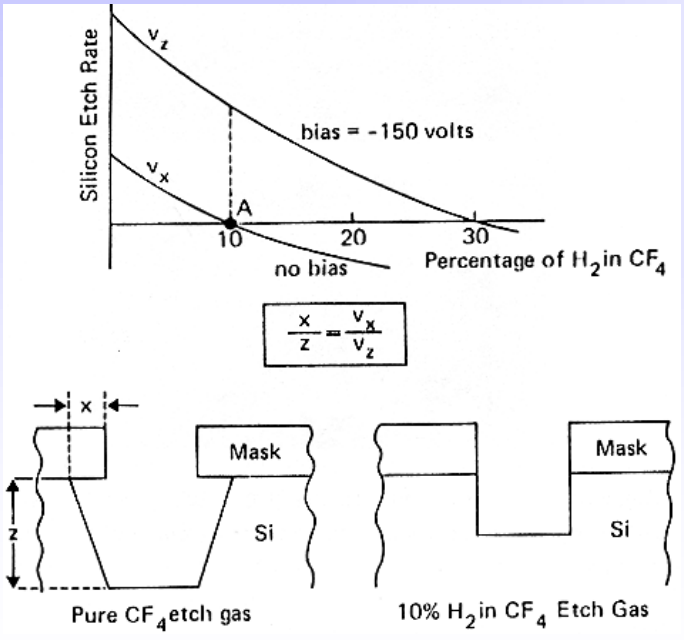
MATERIAL	GASES
Silicon (including polysilicon)	CF_4, CF_4/O_2, CF_3Cl, SF_6/Cl, $Cl_2 + H_2$, C_2ClF_5/O_2 SF_6/O_2, SiF_4/O_2, NF_3, ClF_3, CCl_3F_5, C_2ClF_5/SF_6
SiO_2	CF_4/H_2, C_2F_6, C_3F_8, CHF_3
Si_3N_4	CF_4/O_2, CF_4/H_2, C_2F_6, C_3F_8
Organic Solids	O_2, $O_2 + CF_4$, $O_2 + SF_6$
Aluminum	BCl_3, CCl_4, $SiCl_4$, BCl_3/Cl_2, CCl_4/Cl_2, $SiCl_4/Cl_2$
W, WSi_2, Mo	CF_4, CF_4/O_2, C_2F_6, SF_6
$TaSi_2$	SF_6/Cl_2, CF_4/Cl_2
Au	$C_2Cl_2F_4$, Cl_2

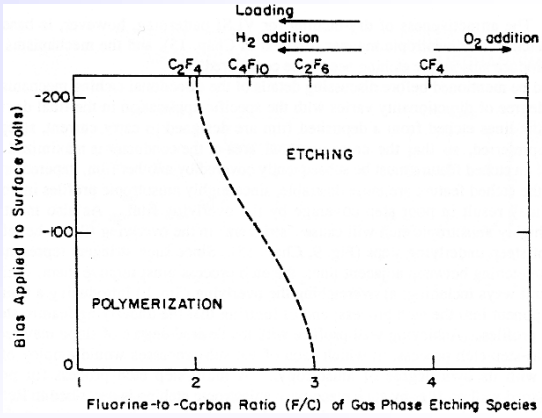
O Efeito da Polarização DC



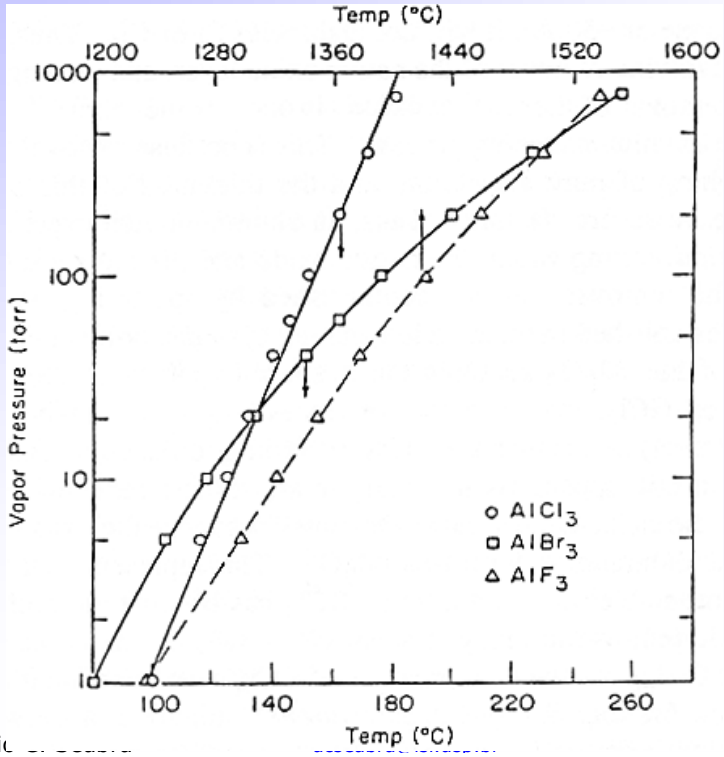


O Efeito da Polarização DC

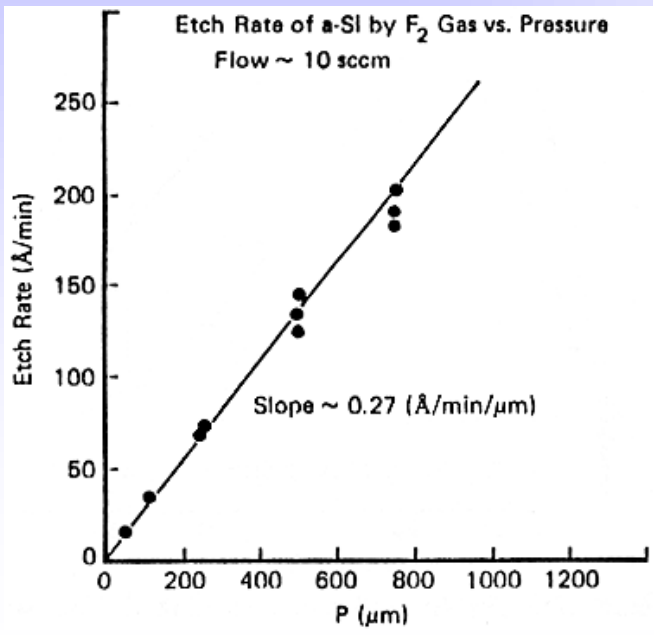


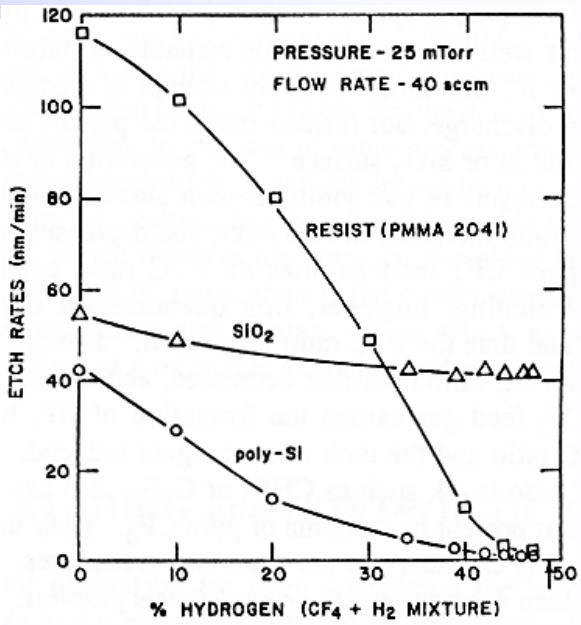


Pressão de Vapor

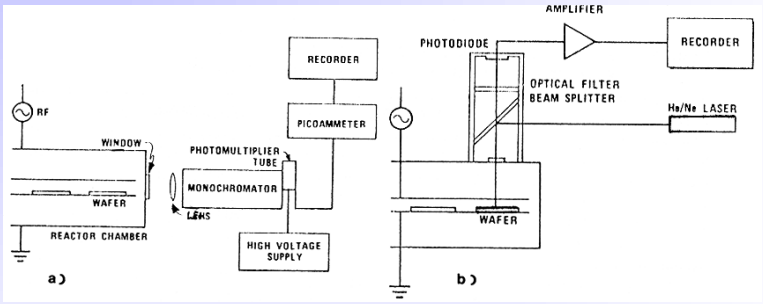


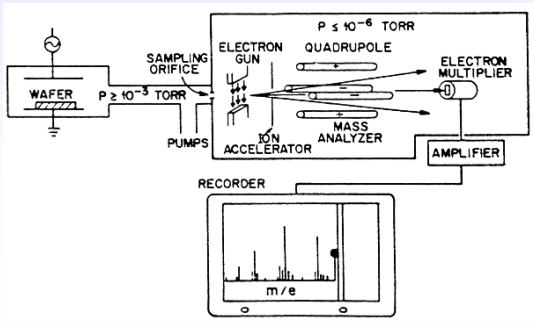
Efeito dos Parâmetros





Sistemas de Diagnose





Danos às Estruturas