

Dry etching characteristics of the CYTOP

Precautions for handling

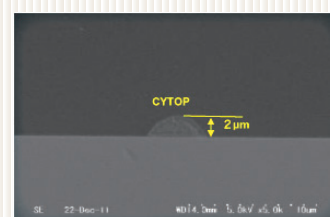
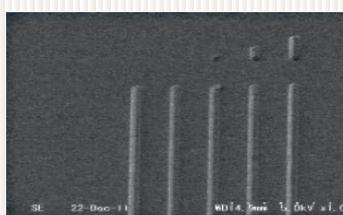
Please be sure to read MSDS before using this product to ensure safe handling.

1 Cytop patterning examples processed in dry etching

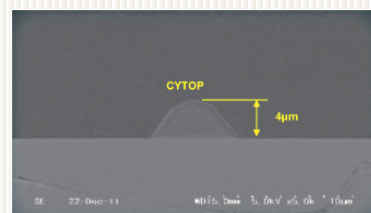
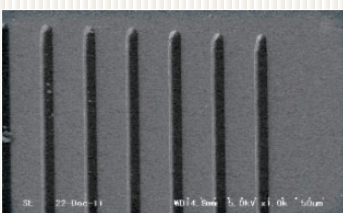
The Cytop film can be etched with O₂ gas. When the Cytop film has thickness of 2 μm and 4 μm, the SEM photos showing the pattern process with a line width of 2 μm are shown below.

• Cytop SEM photo with patterning

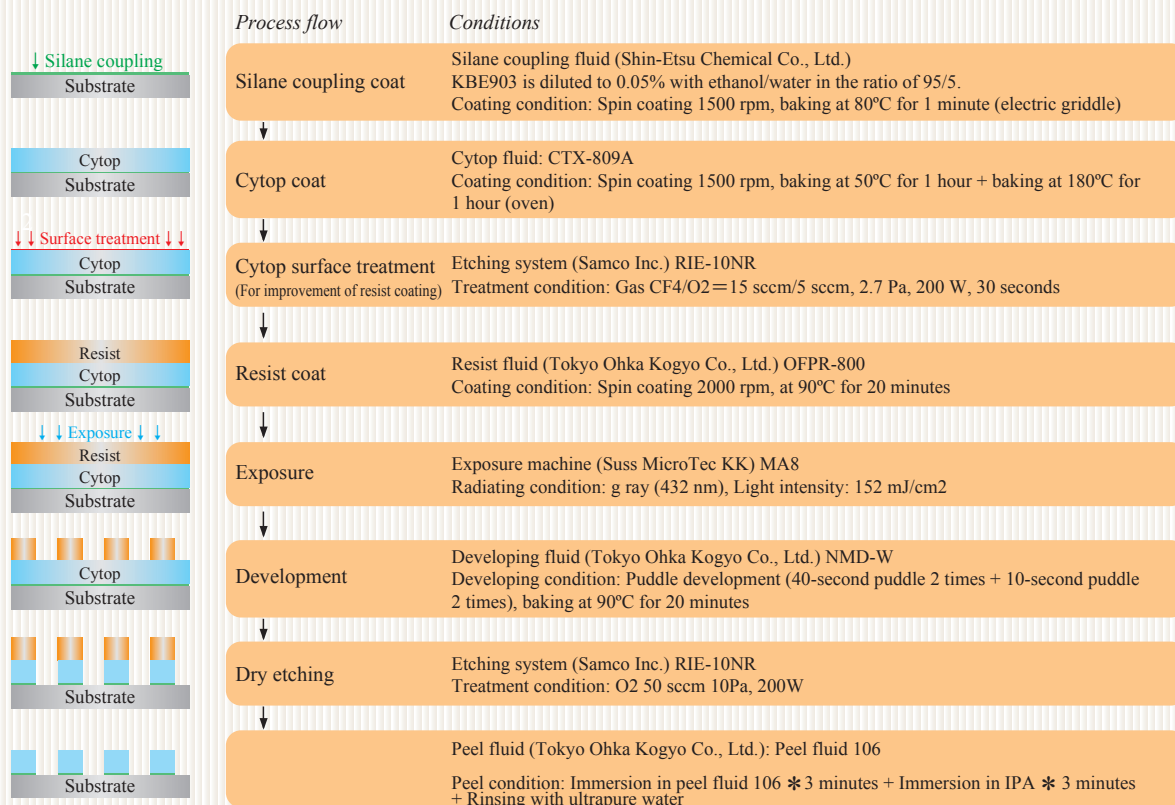
Film thickness of 2 μm * Line width of 2 μm



Film thickness of 4 μm * Line width of 2 μm



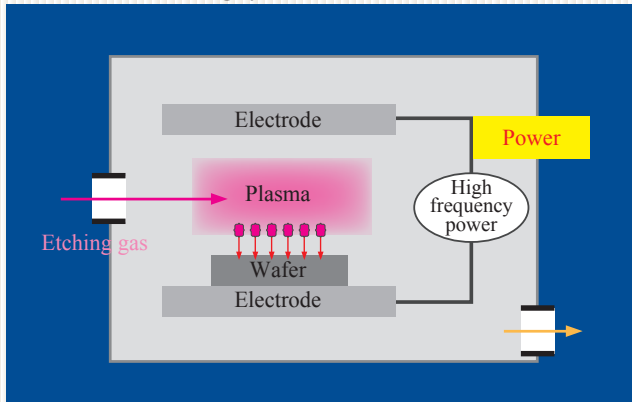
• Process flow and conditions in pattern processing of the Cytop



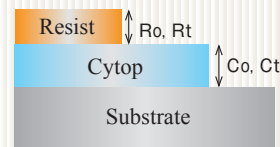
2 Introduction of etching characteristics

When the power, pressure and flow rate are changed using the RIE system, the Cytop etching characteristics (etch rate and selectivity) are introduced below:

• Overview of etching system



(Wafer configuration)



Ro: Resist film thickness before etching
 Rt: Resist film thickness after etching
 Co: Cytop film thickness before etching
 Ct: Cytop film thickness after etching
 t: Etching time

(Etching rate and selectivity)

$$\text{CYTOP Etch Rate} = \frac{CO - Ct}{t}$$

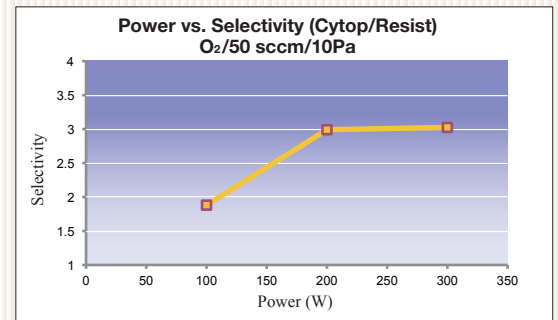
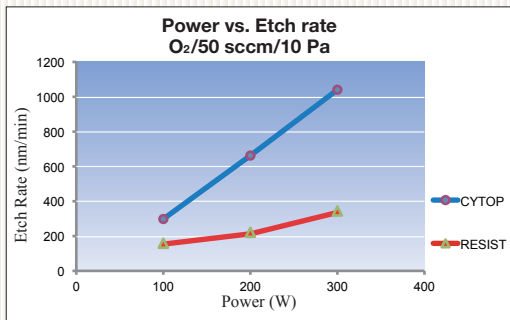
$$\text{Resist Etch Rate} = \frac{RO - Rt}{t}$$

$$\text{Selectivity} = \frac{\text{CYTOP Etch Rate}}{\text{Resist Etch Rate}}$$

• Etching characteristics for each condition

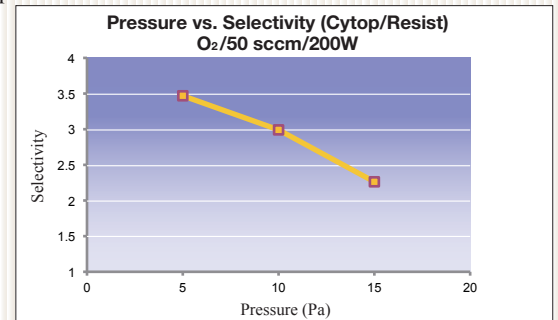
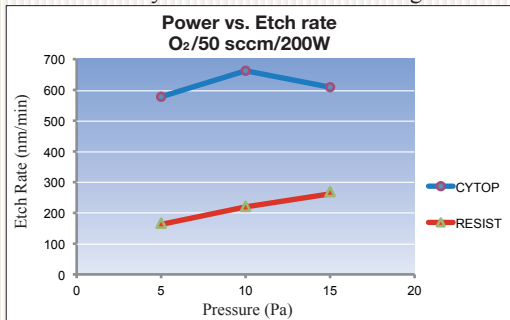
(1) When the flow rate and pressure are constant and power is changed

- The etch rate is increased along with increase of power.
- 200 W and 300 W have higher selectivity than 100 W.



(2) When the flow rate and power are constant and pressure is changed

- The resist etch rate is increased along with increase of pressure, but the Cytop remains constant.
- The selectivity tends to be lowered along with the increase of pressure.



(3) When the power and pressure are constant and flow rate is changed

- When the flow rate is changed, the each rate and selectivity are almost constant.

