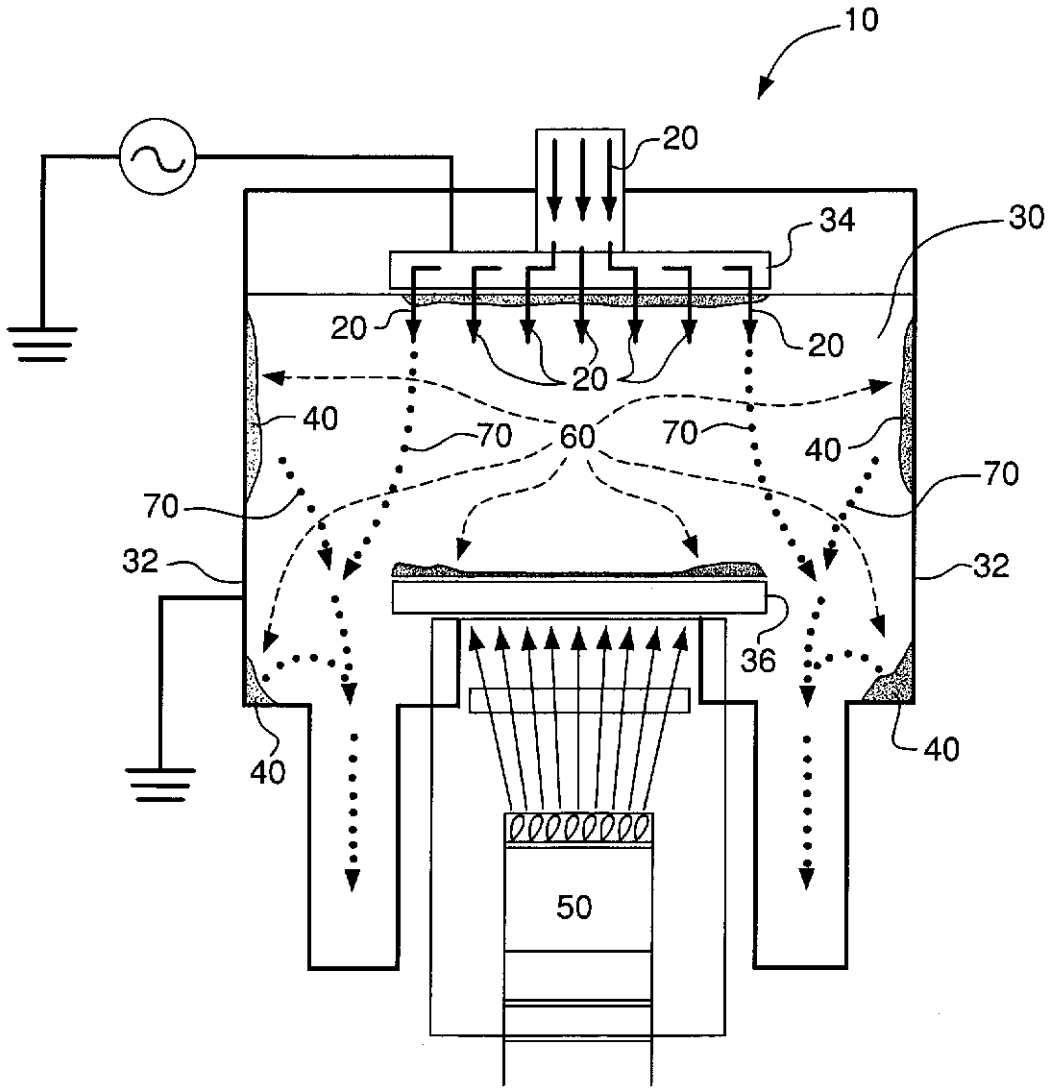


FIG. 1A

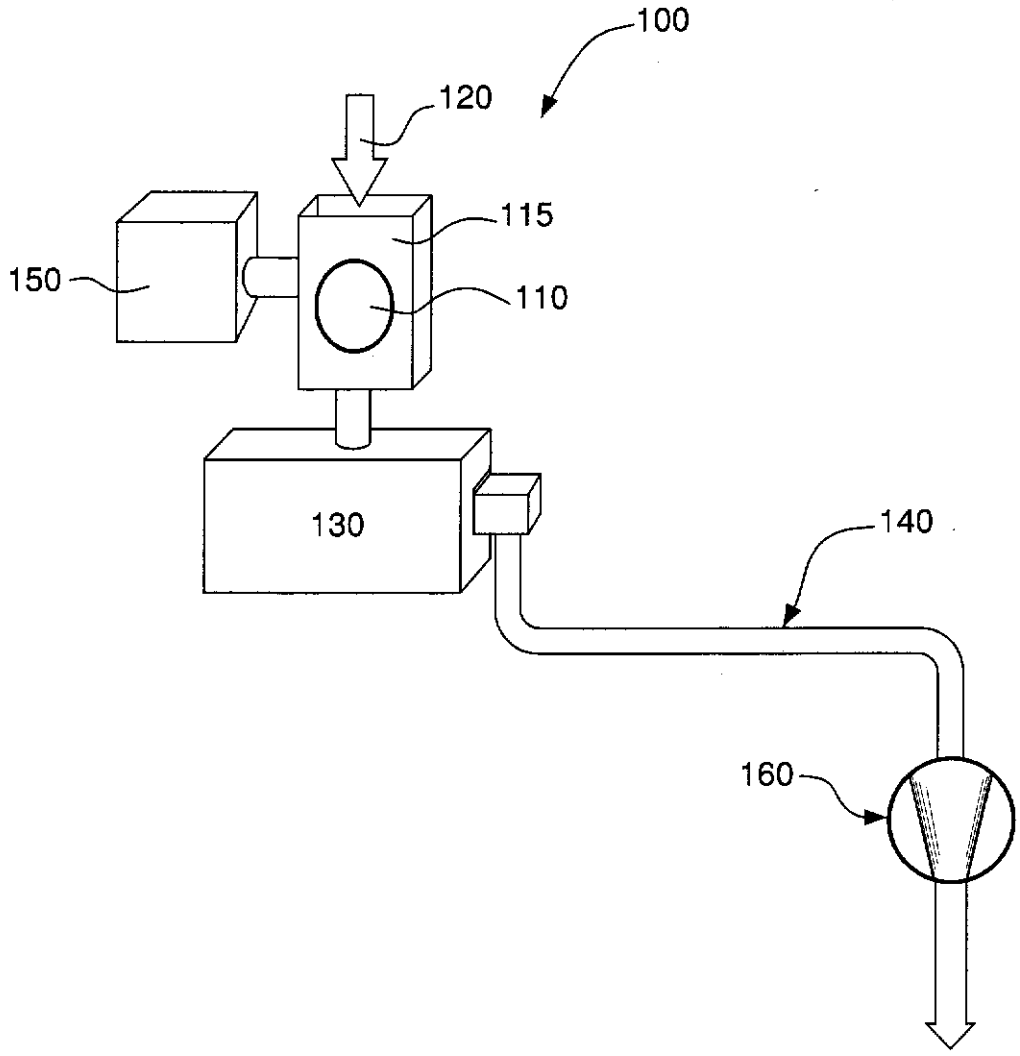


FIG. 1B

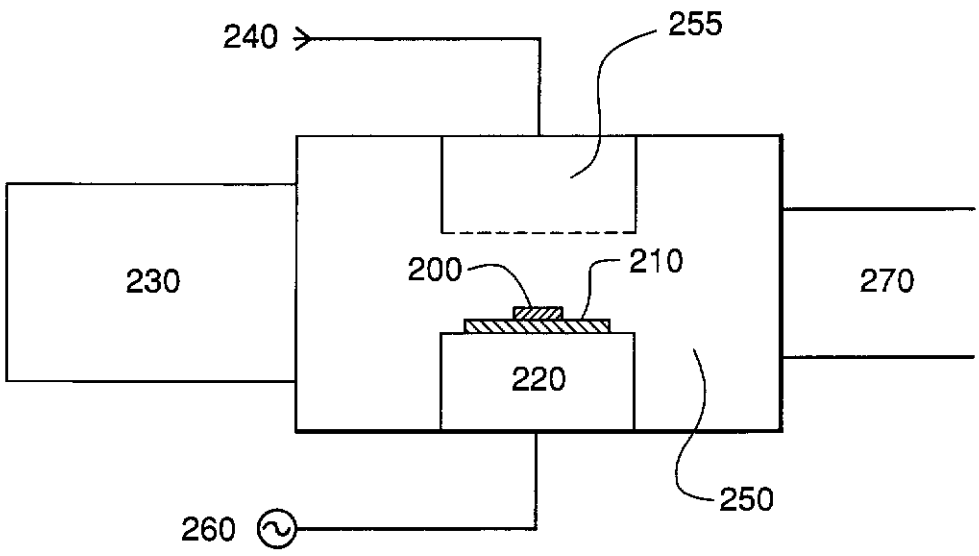
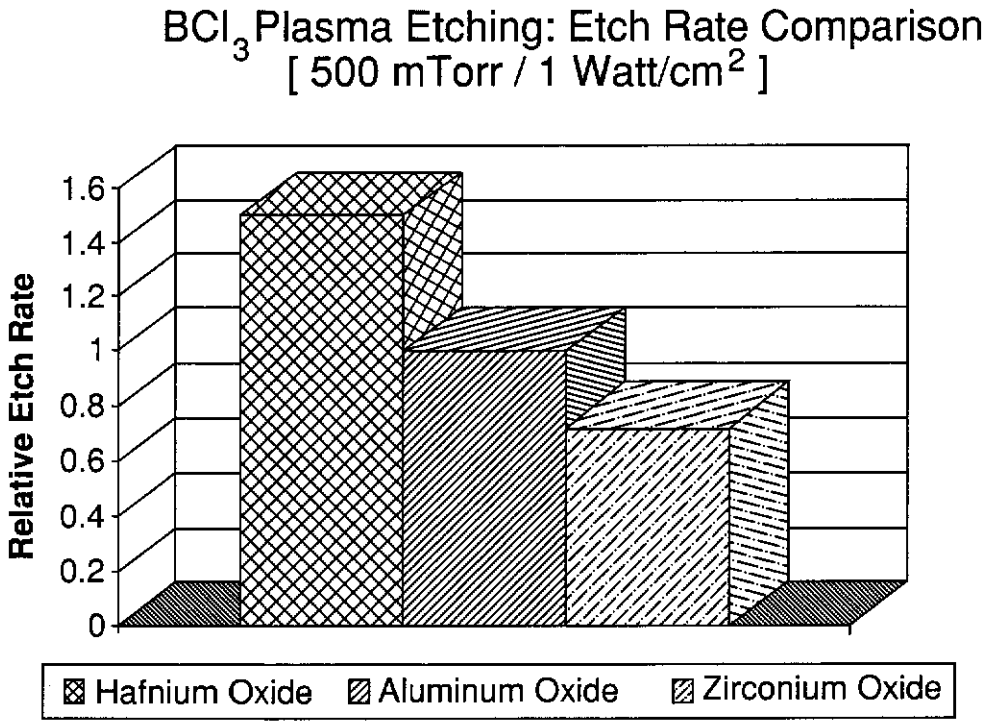


FIG. 2



Relative etch rate comparsion for HfO_2, Al_2O_3, and ZrO_2.

FIG. 3

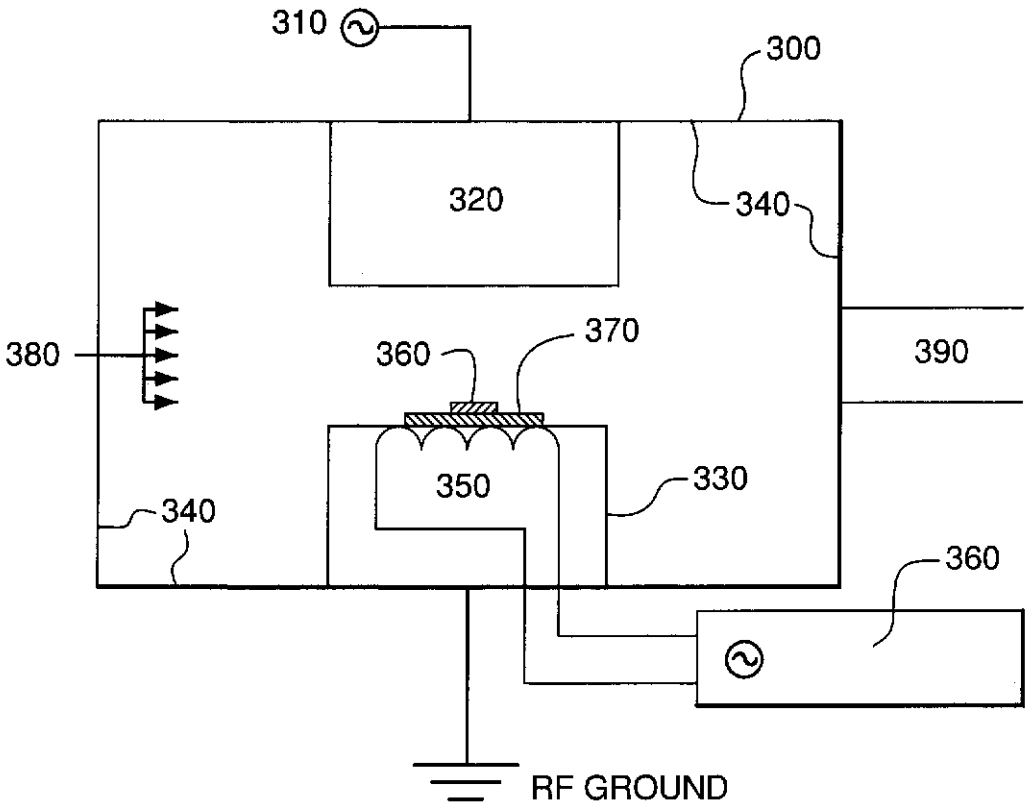


FIG. 4

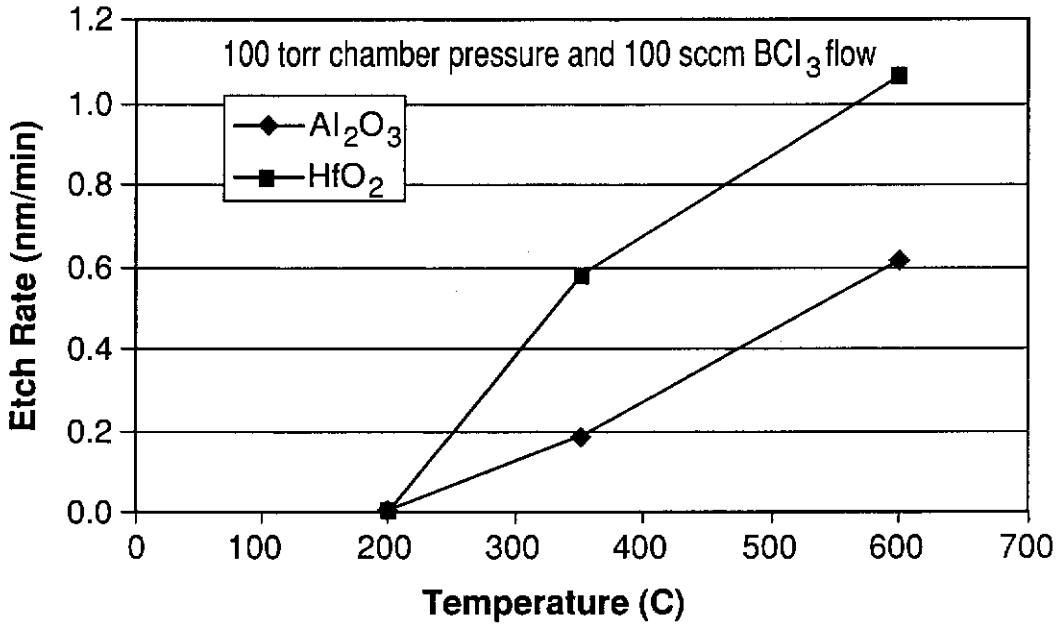

100 torr chamber pressure and 100 sccm BCl3 flow
Al2O3
HfO2
Etch Rate (nm/min)
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
100
200
300
400
500
600
700
Temperature (C)

FIG. 5

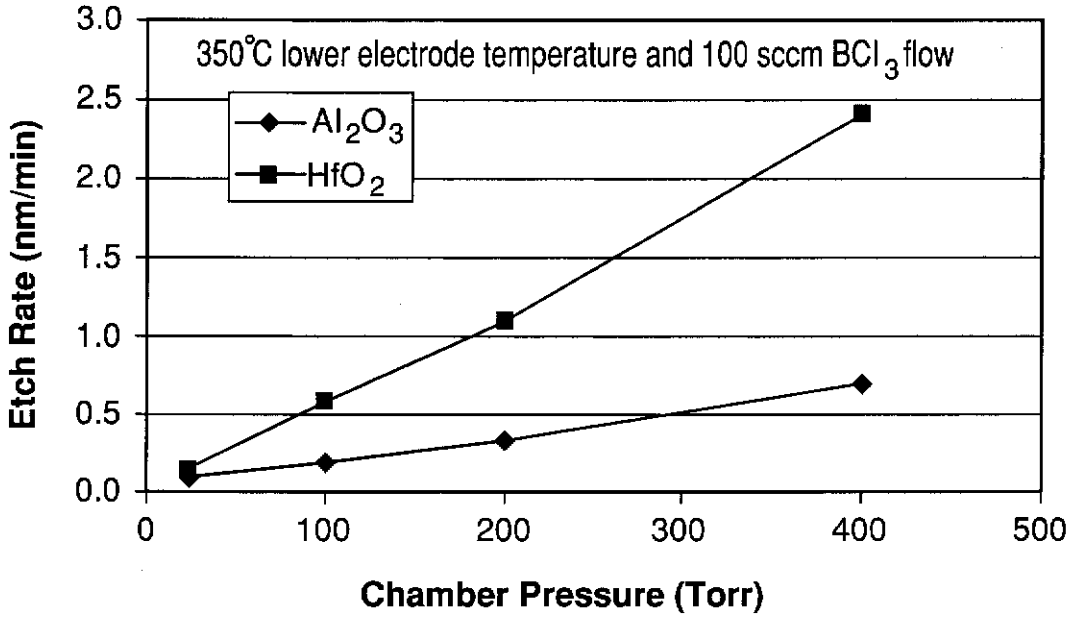

350°C lower electrode temperature and 100 sccm BCl3 flow
Al2O3
HfO2
Etch Rate (nm/min)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
100
200
300
400
500
Chamber Pressure (Torr)

FIG. 6

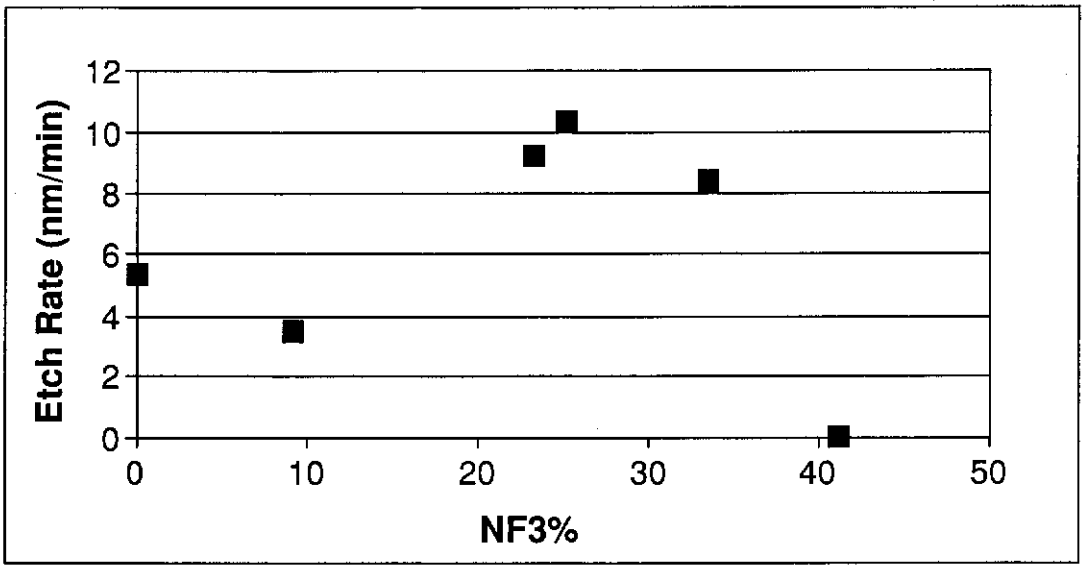


FIG. 7a

HfO_2 etch rates at different NF_3 by volume percentages in the gaseous mixture of BCl_3 and NF_3.

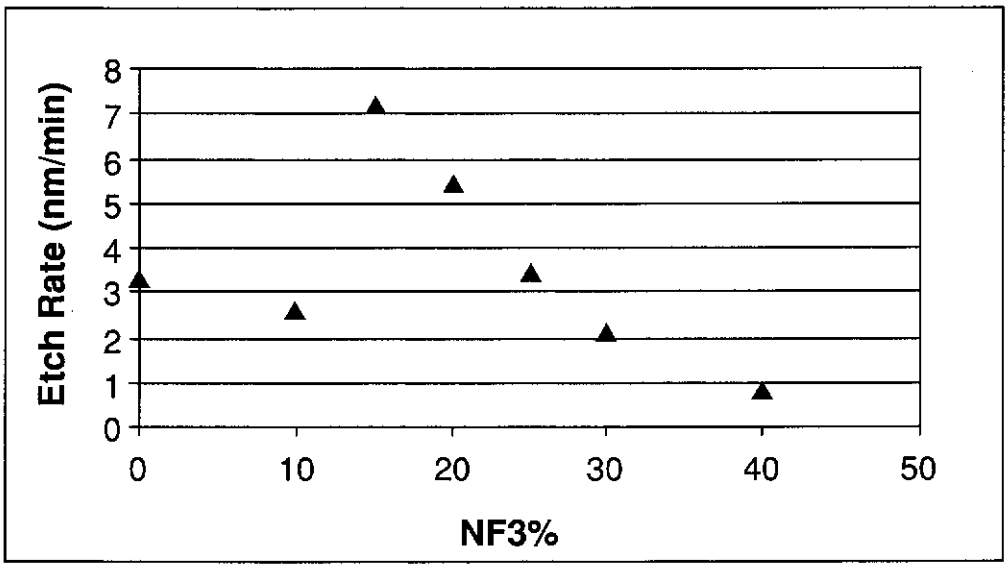


FIG. 7b

$HfSi_xO_y$ etch rates at different NF_3 by volume percentages in the gasesous mixture of BCl_3 and NF_3.

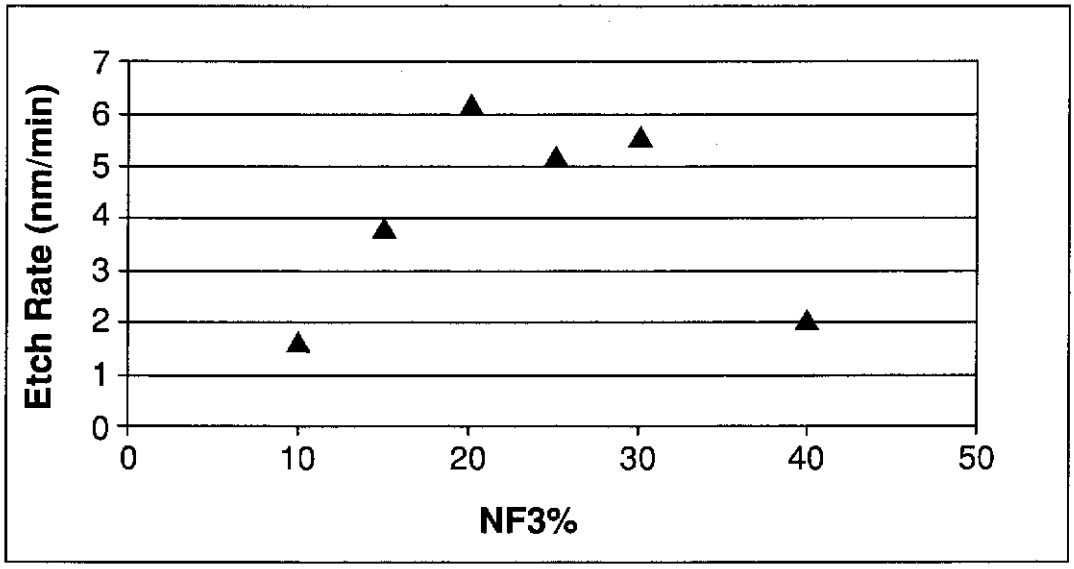


FIG. 7c

ZrO_2 etch rates at different NF_3 by volume percentages in the gaseous mixture of BCl_3 and NF_3.