

**Thermal  $\text{Al}_2\text{O}_3$  Atomic Layer Etching Using HF and Hacac Reactants: Etch Enhancement from Re-fluorination by Product HF During Hacac Reaction**

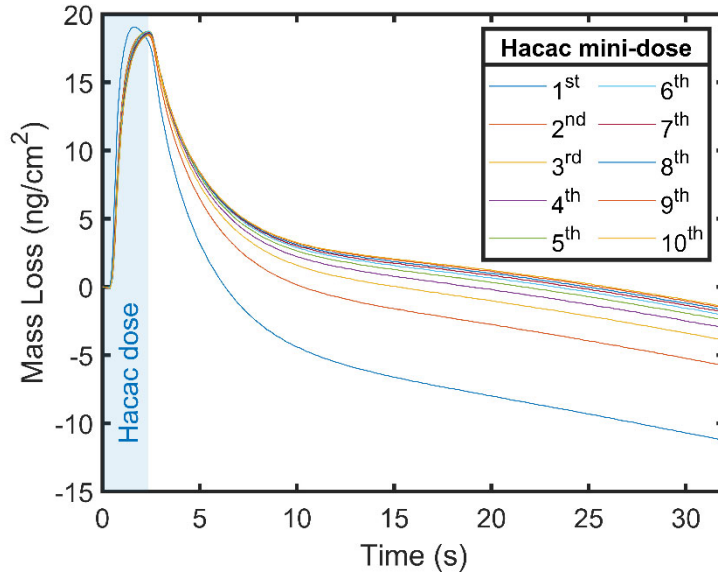


Figure 1 – QCM response to successive mini-doses of Hacac on HF-exposed  $\text{Al}_2\text{O}_3$  at 250°C.

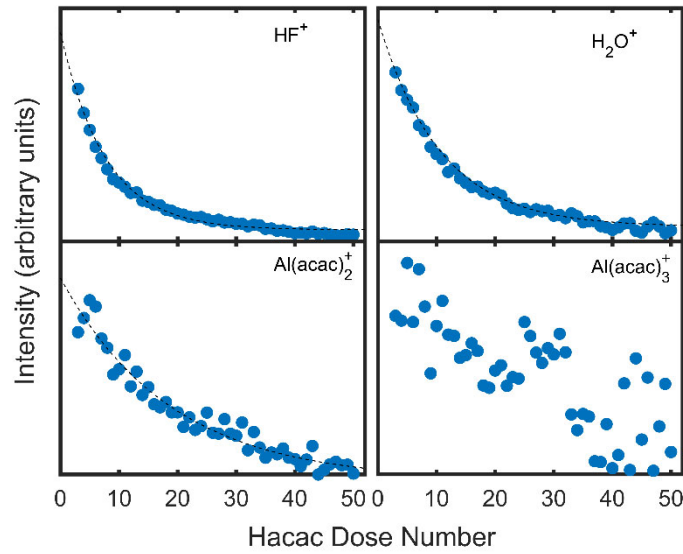


Figure 2 – QMS response to successive mini-doses of Hacac on HF-exposed  $\text{Al}_2\text{O}_3$  at 250°C.