Formation and Thermal Stability of Subsurface Deuterium in Ni (110)

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Highlights

- The uptake and thermal desorption of deuterium on a Ni(110) surface has been measured using incident gaseous D_2 molecules, D atoms, and D_2^+ ions.
- Molecular D_2 exposures on a Ni(110) surface at 90 K under UHV conditions does not populate subsurface deuterium binding states, but incident D atoms and D_2^+ ions do.
- The temperature of the D_2 thermal desorption peak arising from subsurface deuterium is dependent on the energy of the incident deuterium species.
- The thermal stability and D_2 TPD peaks from subsurface D atoms are nearly the same at Ni(110) and Ni(111) surfaces.