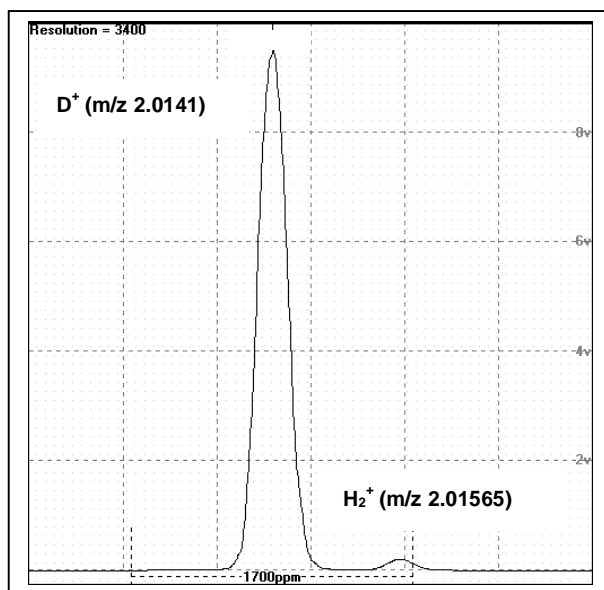


JEOL

GCmate

High Resolution at Low Mass: Separation of H_2^+ and D^+



Peak monitor display from GCmate showing the separation of H_2^+ and D^+ at a resolving power of 3400.

Most familiar applications of high resolution mass spectrometry relate to exact mass measurements for elemental composition determination of compounds such as natural products, environmental contaminants, petrochemicals and synthetic organic compounds. However, high resolution can also be useful at the very low end of the mass scale for monitoring gases and isotopes.

The **GCmate** has a mass range that extends as low as m/z 1 and as high as m/z 3000 (at reduced accelerating voltage) and is capable of a resolving power up to 5,000. This is more than sufficient for analyzing low-mass species such as CO and N_2 as well as H^+ , D^+ , H_2^+ , HD^+ etc. The example shown above was obtained by monitoring H_2^+ (m/z 2.01565) and D^+ (m/z 2.0141) from a mixture of D_2O and H_2O at a resolving power of 3400. The difference in mass between these two species is only 0.00155 u.

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