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Hydrogen Deuteride to 3.4 Megabar Mixed Isotopes and New Phases[1] RANGA DIAS, ORI NOKED, ISAAC SILVERA, Lyman Laboratory of Physics, Harvard University, Cambridge, MA 02138 — We present infrared absorption studies of solid hydrogen deuteride to pressures as high as 3.4 megabar in a diamond anvil cell and temperatures in the range 5 to 295 K. Above 198 GPa the sample transforms to a mixture of , and, interpreted as a process of dissociation and recombination. Three new phases-lines are observed, two of which differ remarkably from those of the high-pressure homonuclear species, but none are metallic. The time-dependent spectral changes are analyzed to determine the molecular concentrations as a function of time.y.

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