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A NEW TRANSITION METAL HYDRIDE, $[\text{RuH}_6]^{4-}$

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In our earlier work iron was the transition metal of choice for the synthesis of complex hydrides. This synthesis, which was an improved bench top synthesis, worked very well for the iron hydrides. A modified method was used with ruthenium to prepare a new complex transition metal hydride. ^1H NMR was used to characterize the ruthenium hydride, $[\text{RuH}_6]^{4-}$. The analysis of the hydrogen uptake data and a product study by gas chromatography determined that hydrogenation of the benzene by-product was taking place. Newer approaches are being sought to improve purity and yield of the ruthenium hydride.