Insights: Publications

Effects of Glymes on the Distribution of Mg(B10H10) and Mg(B12H12) from the Thermolysis of Mg(BH4)2

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We examined the effects of concentrations and identities of various glymes, from monoglyme up to tetraglyme, on H2 release from the thermolysis of Mg(BH4)2 at 160–200 °C for 8 h. 11B NMR analysis shows major products of Mg(B10H10) and Mg(B12H12); however, their relative ratio is highly dependent both on the identity and concentration of the glyme to Mg(BH4)2. Selective formation of Mg(B10H10) was observed with an equivalent of monoglyme and 0.25 equivalent of tetraglyme. However, thermolysis of Mg(BH4)2 in the presence of stoichiometric or greater equivalent of glymes can lead to unselective formation of Mg(B10H10) and Mg(B12H12) products or inhibition of H2 release.

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