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Synthesis of $BaMo_3$ from Colloidal MoS_2[1] ANDRES DE LA GARZA, Texas Lutheran University, BENJAMIN MARTIN, Texas State University — MoS_2 is typically considered to be a highly stable structure, but we have found that it spontaneously reacts with aqueous solutions containing Ba^{2+} to generate $BaMoO_4$. This reaction occurs rapidly when the MoS_2 is first exfoliated into nanoparticulate plates. In this study we investigate the oxidizing agent in this reaction, the fate of sulfur, and how the pH of the solution affects the production of $BaMoO_4$. The reaction was found to be most efficient at high pH indicating that hydroxide may be involved in the mechanism. Inert atmosphere conditions and non-oxidizing anions were used to determine that water is the oxidizing agent. H_2S was found in the product using GC-MS, implying that sulfur leaves as S^{2-}.

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