KELLY WEAVER and KEVIN L. EVANS, Department of Science and Mathematics, Glenville State College, Glenville, WV 26351. Optimizing the reaction conditions for the anti-Markovnikov hydrobromination of alkenes.

The addition of hydrobromic acid to an alkene is a fundamental organic reaction with unsymmetrical alkenes yielding two products, Markovnikov and anti-Markovnikov alkyl bromide. Both of these products can theoretically be produced from either the electrophilic addition mechanism or the radical mechanism. The electrophilic addition mechanism produces predominately the Markovnikov alkyl bromide while the radical mechanism produces predominately the anti-Markovnikov alkyl bromide. The overall objective of this research is to develop a novel synthesis of the anti-Markovnikov alkyl bromide through a radical mechanism from the *in situ* generation of hydrobromic acid from phosphorus tribromide and water. Results from 1-octene and undecylenic acid show a strong correlation between the volume of the solvent and the percent anti-Markovnikov alkyl bromide produced. For 1-octene a stir time of 24 hours is preferable over 2 hours to improve the percent yield of alkyl bromides. Additional stir time beyond 24 hours was not beneficial as the percent yields remained comparable. While stir times of both 2 and 24 hours had comparable percent yields for undecylenic acid, the stir time of 24 hours had a stronger correlation between the volume of solvent and the percent conversion to the anti-Markovnikov alkyl bromide. This procedure appears to be a viable synthesis of the anti-Markovnikov alkyl bromide, but additional trials with other alkenes need to be performed.