Considering the Green Economy of Recycling Amberlyst-15 Beads

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Due to the importance of being sustainable, recovering and recycling Amberlyst-15 beads was evaluated. The goal of this project was to analyze how many times in the organic lab the Amberlyst-15 beads could be recycled as well as the most efficient way to recycle the beads while still providing satisfactory enough yields for the Pechmann Condensation synthesis of 4-ethylumbelliferone. Several solvents and recycling conditions were explored and the results suggested that soaking the beads in acetone for a controlled amount of time was the best way to recycle them, as opposed to them soaking overnight. The green aspect of this procedure will provide students and researchers an environmentally friendly route to create this fluorescent compound. A variety of experiments were performed and they showed that recycling the beads more than once will decrease their efficiency and reduce reaction yields.

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