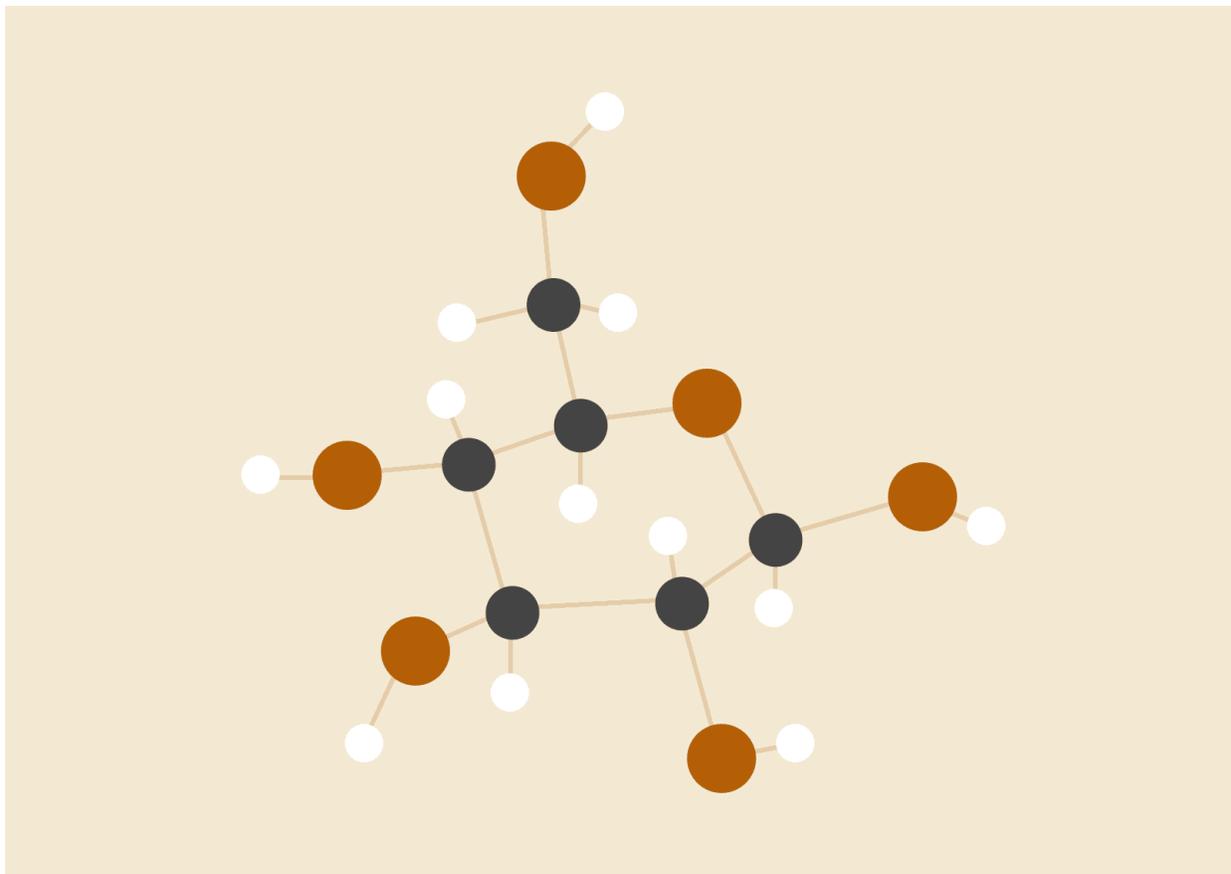


Diels-Alder Reaction lab



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Purpose:

This lab aims to form 9,10 dihydroanthracene-9, 10-a, B-succinic anhydride by way of a Diels Alder reaction between anthracene and maleic anhydride.

DATA TABLE:

19 Thu, Apr 13 84%

Diels Alder reaction lab

Organic Chemistry with Vernier 3

DATA TABLE

Part I Synthesis of 9,10-dihydroanthracene-9,10- α,β -succinic anhydride

Mass of anthracene (g)	0.84
Mass of maleic anhydride (g)	0.42
Mass of filter paper (g)	0.54
Mass of filter paper and product (g)	1.06
Mass of product (g)	0.52

Part II Melting Temperature

9,10-dihydroanthracene-9,10- α,β -succinic anhydride

DATA ANALYSIS:

DATA ANALYSIS

1. What is the theoretical yield of 9,10-dihydroanthracene-9,10- α , β -succinic anhydride in your synthesis? What is the actual yield?

Molecular weight of anthracene = 178 g/mole

Molecular weight of 9,10-dihydroanthracene-9,10- α , β -succinic anhydride = 276 g/mole

$276 \times 0.04 \text{ mol} = 11.04 \text{ g}$

$0.42198.06 = 0.04$

Theoretical yield

Actual yield

$\frac{.52}{11.04 \text{ g}} = 0.047$

Percent yield $\frac{0.047}{1} \times 100 = 4\%$

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Organic Chemistry with Vernier

What is the theoretical yield of 9,10-dihydroanthracene-9,10- α , β -succinic anhydride in your synthesis? What is the actual yield?

Theoretical Yield: 1.30g

Actual Yield: 0.047g

Percent Yield: 4%

Conclusion:

By synthesizing 9,10-dihydro anthracene-9, 10- α , β succinic anhydride, and using filtration to isolate the product. We observed how Anthracene acts as the diene and maleic anhydride functions as a dienophile. From this reaction, we were able to calculate the actual yield and compare it to the theoretical yield. Our product produced a yield of 0.047 and a percent yield of 4%