

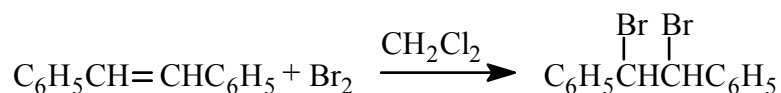
Unit 3M: Introduction to Organic Synthesis III

Preparation of meso-Stilbenedibromide (Last updated 08/17/04)

This assignment is due at the beginning of your recitation section one week before the day that you are scheduled to perform this experiment. It is in your best interests to complete these exercises as far in advance as practical. It is not in your best interests to wait until the day you have lab.

To receive a satisfactory grade your answers must be presented clearly. Looks count. Do your preliminary work on scrap paper. You can find data about the physical properties of the compounds in question in an Aldrich catalog, copies of which are available in rooms 152 and 363 of the Science building.

In the **Introduction** to this Unit, the bromination of stilbene was described in general terms by the following equation:



1. Complete the following table:

Compound	Formula Weight
<i>trans</i> -stilbene	
dibromine	
<i>meso</i> -1,2-dibromo-1,2-diphenylethane	

2. The experimental procedure calls for you to use 1.0 ± 0.1 mmol of *trans*-stilbene. What mass range does this correspond to? Show your work for the minimum mass.

Minimum mass = _____ mg

Maximum mass = _____ mg

3. What mass of dibromine would you use for each of the masses of *trans*-stilbene you calculated in question 2? Show your work for the minimum mass.

Minimum mass = _____ mg

Maximum mass = _____ mg

4. The dibromine you will use is dissolved in methylene chloride. The concentration of this solution is 2% by volume. This means that there are 2 μL of dibromine in every 100 μL of solution. The density of pure dibromine is 3.119 $\text{mg}/\mu\text{L}$. How many milligrams of dibromine are there in 100 μL of this 2% solution? Show your work.

_____ mg

5. How many mmol of dibromine are there in 100 μL of this 2% solution?

_____ mmol

6. How many microliters of the 2% dibromine solution are required to completely react with the minimum and maximum masses of *trans*-stilbene you calculated in question 2? Show your work for the minimum volume.

Minimum volume = _____ μL

Maximum volume = _____ μL

7. What is the theoretical yield of *meso*-1,2-dibromo-1,2-diphenylethane that is possible from the quantities of *trans*-stilbene you calculated in question 2? Show your work for the minimum theoretical yield.

Minimum yield = _____ mg

Maximum yield = _____ mg