

## 11 Silver Mirror Lab (762110)

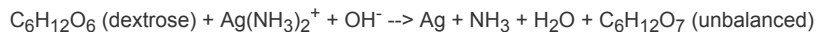
Question

1 2 3 4 5 6 7 8 9 10

**Instructions**

Purpose: To create a silver mirror inside a glass ornament and to observe the chemical reaction that takes place in the Tollen's Test.

Background: The Tollen's test is used to detect the presence of aldehyde groups. The reaction that takes place is: (equation 1)



Equipment: Clear glass ornament, 150 mL beaker, stirring rod, parafilm, 10 mL graduated cylinder, 10 mL graduated pipets

Safety: Wear goggles and gloves during the entire procedure. Perform the part of the experiment involving the ammonia in the hood because the fumes are quite powerful. The product of this reaction may form explosive silver nitride if not properly treated.

Procedure:

1. Using a pipette, carefully measure 10.0 mL of 0.10M silver nitrate solution and pour it into a clean 150 mL beaker.
2. Take the beaker to the hood and add a drop of 14.8 M ammonia (ammonium hydroxide) to the beaker. A brown precipitate should form. Continue adding ammonia dropwise, with stirring, until the precipitate disappears. Try not to add more ammonia than necessary to dissolve the precipitate.
3. Now add 5 mL of 0.80 M KOH solution to the beaker and stir. If the brown precipitate reappears, add more ammonia dropwise until it dissolves.
4. Remove the top hanger part of the ornament. Using a pipette, add 1 mL of 0.25 M dextrose solution to the ornament. Add the solution from the beaker you prepared in step 3 to the ornament.
5. Cover the top of the ornament with some parafilm so as to seal the liquid inside the ornament. Gently swirl the solution in the ornament allowing it to come in contact with all parts of the ornament.
6. Continue to gently swirl until a silver mirror coating appears and covers the entire inside of the ornament. (this may take about 5 minutes)
7. Dispose of the solution in the ornament into the sink and gently rinse the inside of the ornament at least three times with distilled water into the sink.
8. Allow the ornament to drip dry and then place the hanger back inside the top of the ornament.
9. The ornament may now be used safely.

## 1. Question Details

Objective and procedure summary [3413760]

Restate the objective in your own words using complete sentences. Summarize the steps in your procedure. (Be sure and include any safety concerns).

## 2. Question Details

Silver Mirror 1 [1043402]

What chemical process are the silver ions undergoing in this reaction?

## 3. Question Details

Silver Mirror 2 [1043406]

What is an aldehyde?

## 4. Question Details

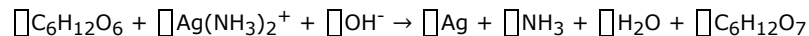
Silver Mirror 3 [1043407]

What is dextrose?(more info than just the formula)

## 5. Question Details

Silver Mirror 4 [1043411]

Balance the following equation:



(put a 1 in the box if the coefficient is one)

## 6. Question Details

Silver Mirror 5 [1043409]

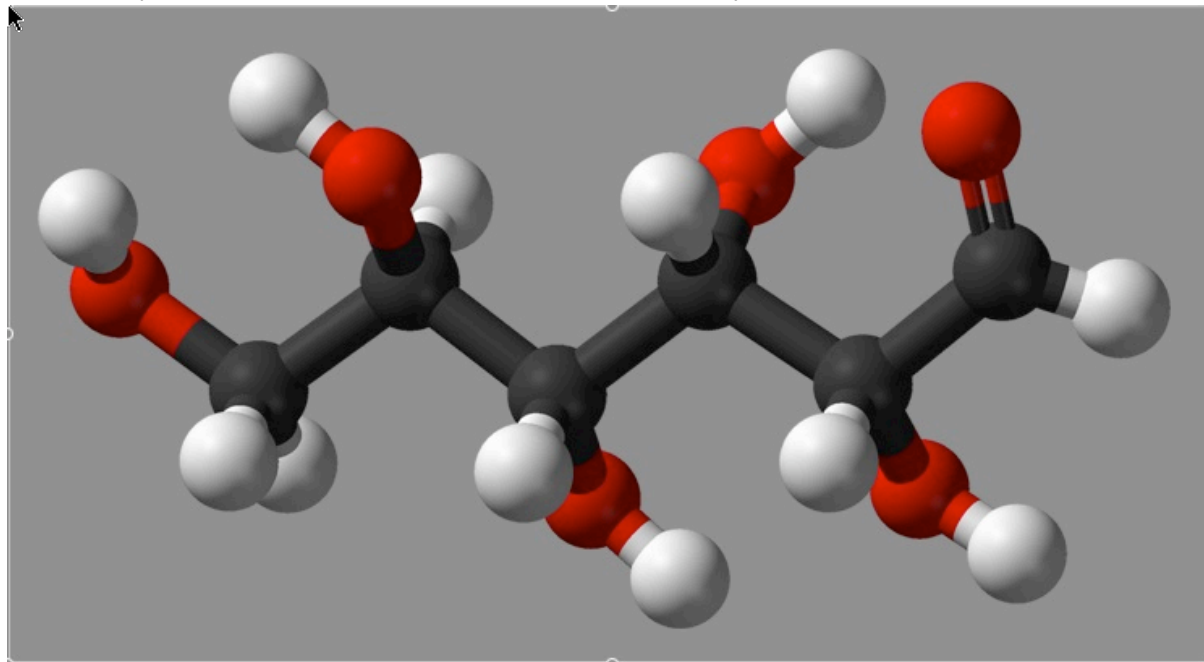
Using the balanced equation, calculate the theoretical mass yield of silver. (Remember to determine the limiting reactant)

g

## 7. Question Details

Silver Mirror 2.5 [1043568]

Click on the portion of the molecule that is characteristic of an aldehyde.



## 8. Question Details

Upload Lab Photo [3413757]

Upload a photo of the lab apparatus with your face in the photo as you perform some part of the lab. Title the image with a unique file name before you upload it. (Maybe use your initials and part of the lab title)  no file selected It must be less than 5 MB in size.

## 9. Question Details

Observations, Skills utilized and learning [3413764]

What observations did you make during the lab? What chemistry concepts, laws, and/or skills were necessary to complete this lab? What did you learn or re-learn? Use complete sentences.

## 10. Question Details

Upload Calculations (Show Work) [3418656]

Upload a photo of your calculations, showing your work. Make sure your name and the date are written on the page. Title the image with a unique file name before you upload it. (Maybe use your initials and part of the lab title and the word Calcs)

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## Assignment Details

Name (AID): 11 Silver Mirror Lab (762110)

Submissions Allowed: 5

Category: Lab

Code:

## Feedback Settings

Before due date

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Assignment Score

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