

UCD Dissection

What's The Point?

In this experiment, you will discover the absorbing element of a urine collection device. You will also determine the maximum amount of water it could absorb.

What Does This Have To Do With Space?

Due to an unfortunate incident for Alan Shepard, Gus Grissom was the first astronaut to wear a urine collection device. Female Shuttle astronauts on EVA now wear an adult style disposable diaper, which is still worn by female astronauts on EVA. Males have a choice between the diaper and a bladder type device that must be attached to their body. There is a substance in the UCD that is responsible for absorbing the liquid. It is this substance you will investigate.

Materials:

1 disposable diaper
scissors
zip-lock baggie
water
salt 1 gram sodium polyacrylate
disposable gloves
graduated cylinder

Safety:

Disposable gloves must be worn.

Procedures:

1. Put on the disposable gloves
2. Open the diaper and spread it on a flat surface
3. Select an area approximately 4 cm square in the center of the diaper and cut it out
4. Put the square of diaper into the baggie and seal it
5. Shake the bag vigorously for 1 minute
6. If you can see some fine white powder in the bottom of the

- baggie then open it and remove the square of material, leaving the powder in the bottom. Throw the square away.
7. If you do not see any powder, cut another square and repeat the shaking process.
 8. Once the square is removed, add 20 ml of water to the bag, seal it and gently mix the powder with the water.
 9. Observe the results, record the observations on the data sheets.
 10. Add .5 grams of salt (NaCl) to the bag, seal, mix.
 11. Observe for 1 minute and record results.
 12. Dispose of bag, being sure that it remains sealed.
 13. Add 1 gram of sodium polyacrylate to an empty bag.
 14. Predict how much water this amount of sodium polyacrylate can absorb, record this prediction on your data sheet.
 15. Add water to the bag in 20 ml increments, remember to mix between each addition.
 16. Record final amount of water absorption.
 17. Dispose of bag, being sure that it remains sealed.
 18. Clean-up, remove gloves and wash hands.
 19. Finish data sheet.

[UCD Data Sheet](#)