

Self-Carving Pumpkin

Demo #035

Materials NOT in box

1. Safety goggles.
2. Pumpkin.
3. Calcium carbide CaC_2 (in flammable cabinet in stockroom.)

Procedure

1. (Prep) Carefully carve a pumpkin and place the carved pieces back into the pumpkin or e-mail Darby (feldwinn@chem.ucsb.edu) a few days before you plan on performing the demo and she will have a pumpkin for you. Make sure you also carve a whole in the back of the pumpkin that a lighter can be inserted into.
2. (Prep) Fill the CaC_2 bottle with 3.3 g of CaC_2 . The CaC_2 is located in the flammable cabinet in the stockroom.
3. (Prep) Pour the CaC_2 into one of the metals containers and place the container in the pumpkin and place the lid on the pumpkin.
4. When you are ready to perform the experiment pour ~25 mL of water into the metal can and put the pumpkin's lid back on.
5. Put your hand on the pumpkin lid and insert the lighter into the whole in the back of the pumpkin.

Safety

1. Wear safety goggles.
2. MAKE SURE THAT THE PUMPKIN IS AT LEAST 10 FEET AWAY FROM STUDENTS WHEN PERFORMING DEMO.
3. Make sure that your hand is on the lid of the pumpkin so it is not ejected.
4. Acetylene gas is formed rapidly when calcium carbide is combines with water. Take appropriate precautions when performing the demo.
5. Make sure that hair is tied back.

Clean Up

1. Return the materials to the cart in the demonstration library room.

Stockroom Notes.

1. Neutralize the used solution with HCl and then pour the solution down the drain with plenty of water.
2. Wash out metal containers and return to box.

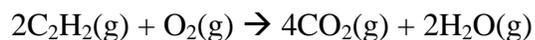
3. Do not refill or washout the CaC₂ single use containers.
4. Return the items to the demonstration tub.
5. Return the tub to the demonstration library.
 - a. Return the goggles to the goggle box.

Discussion

When water is added to CaC₂ the following reaction occurs.



Acetylene, C₂H₂, is a flammable gas. If a lighter is lit in the pumpkin the following combustion reaction occurs.



The reaction provides enough force to eject the pre carved pumpkin piece and the burning gas can then be seen through the exposed holes.

Materials for demo 035

1. Five Metal Containers
2. Five Jars for CaC_2 Fisher C57-500
3. Long lighter
4. Bottle of DI water