

SAFETY GUIDELINES FOR BIG TANK

1. Take the following precaution when the big tank is being fired
 - a. Close all doors firmly locked
 - b. Place warning signboards outside each door of the lab area
2. Wear ear and eye protection
3. Double check to make sure no one is in the big tank, not everybody is David Blaine.
4. Check to make sure door to outside is closed and locked

Procedure for Running a Safe Big Tank Experiment

1. Ensure each of the following items are available in good condition
 - a. Astromed, High Speed Camera, proper cables, extension cords, research notebook, pressure sensors, etc
 - b. Ask someone to help you mount and setup the cameras if you are new and learning.
2. Set up Camera in proper position
3. Set up flash bulbs and/or proper lights
4. Attach cables to necessary components and to triggers
5. Once High Speed Camera and components are set up, then place sample in enclosure
 - a. Use the Photron Viewer for positioning the sample in place
 - b. Adjust camera for experiment and focus on sample
6. Set up computer software (Imacon200, or Photron SA1)
7. Trigger camera and adjust images accordingly
8. Once Camera and computer are in place, properly set up oscilloscope place pressure sensors in the shock tube
9. Make sure everything is turned on and set up properly for given test
10. Fill up the tank with only after opening the top outlet valve for air to escape while water is being filled:

- a. Mark the clock time; tank fills up in approx. 1 hr 15 mins, so return to shut off the pump at 1-hour mark at the latest. The tank fills up much faster as the level nears the blue tape marks on the side gauge.
 - b. The water level must not exceed the fill level beyond the levels between the two blue tape marks; as the water shoots out rapidly if left unattended
11. Check everything over one more time and make sure nothing triggered prematurely
12. Make sure Nitrogen tank is completely shut and **follow the safety rules**
13. **Completely isolate the tank by shutting off all the valve openings going in and out of the tank**
14. Go to Nitrogen tank and set a line pressure below 1000 psi because the safety release valve will release pressure in excess of 1000 psi.
15. Connect the solenoid valve to the power supply and turn on the unit.
 - a. Increase the pressure to 5 psi and check for leaks
 - b. Slowly increase the pressure and keep checking regularly for any leaks or false triggers.
16. Once sample has been tested, shut off gas and proceed to checking the scope and camera for data
17. **Release excess pressure in the line after de-pressurizing the big tank**
18. Make sure to save data to respected positions
 - a. Camera data saved under “users” for Imacon.
 - b. Astromed data saved on USB and then on your computer
 - i. Double check to make sure data is there
19. Remove sample from Big Tank; put back together as well as possible, **take pictures**