

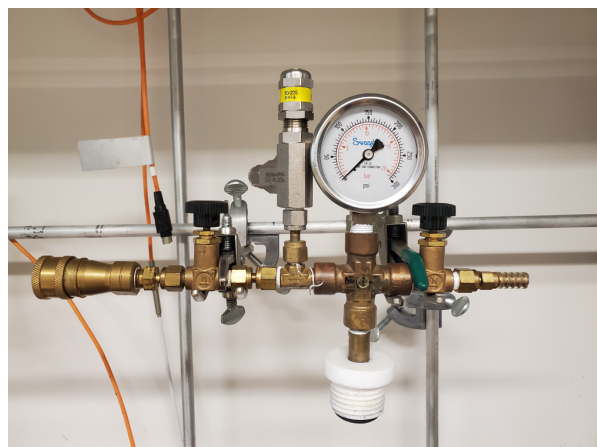
Handout for Use of Fischer Porter Bottle

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Pictures of Reaction Setup:

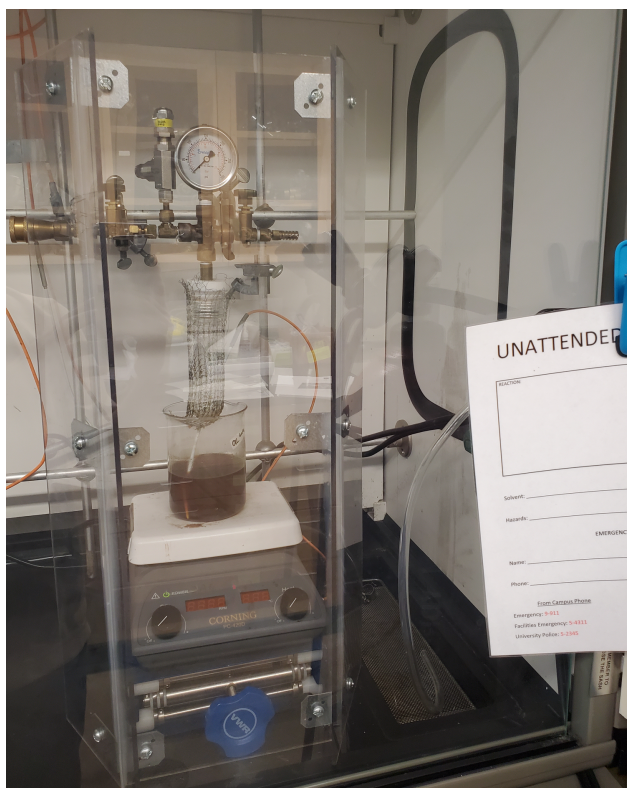
1.



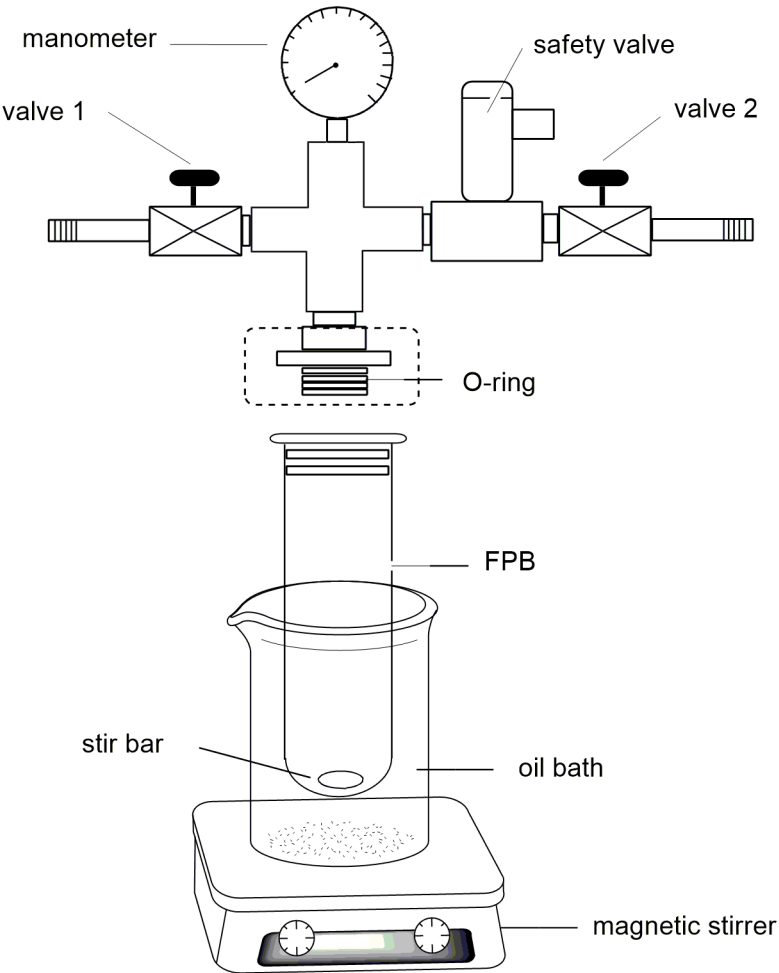
2.



3.

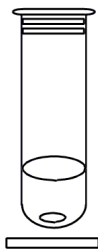


The Components of Fischer-Porter-Bottle (FPB):



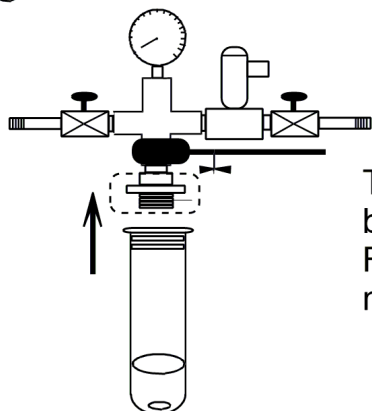
Instructions for Handling the Fischer-Porter-Bottles

①



A clean vessel is loaded with a stirring bar and the reaction mixture.

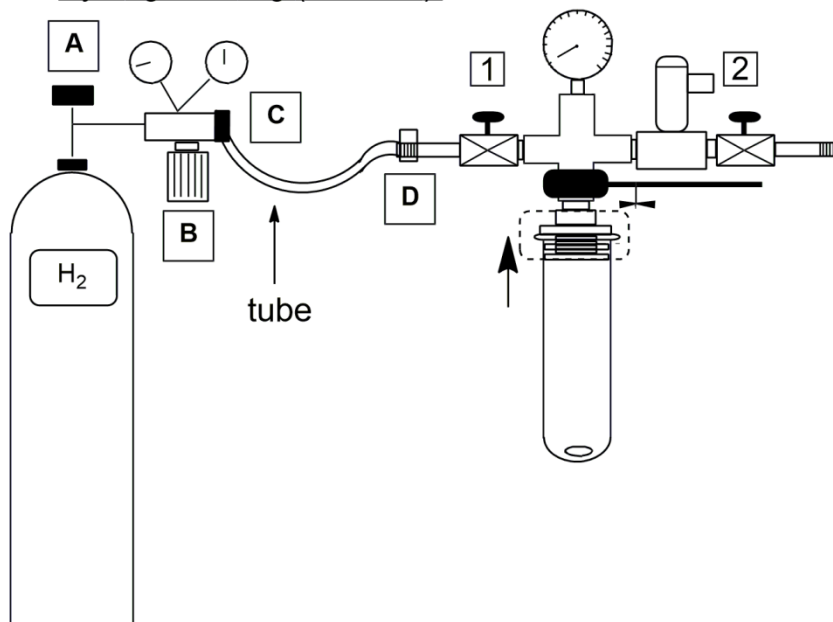
②



The upper part (valves, manometer) must be fixed with a clamp. The lower part (filled FPB) is screwed tightly by hand. Tools are not necessary.

③

Hydrogen Filling (1-10 bar):



④

- (i) Check the pressure gauges on the H₂ cylinder. The readings of both gauges should be 0. Make sure valve **[1]** and **[2]** are both closed.
- (ii) Fix FBP as shown in figure 2. Do not hold the bottle in hand while manipulating valves.
- (iii) Pull back the sleeve of the connector to fit the hose from the H₂ cylinder to the setup. The connector should make a click sound when the hose is correctly connected.
- (iv) Open the main valve **A** of the H₂ cylinder. Adjust the pressure to the desired value using valve **B** if necessary. The pressure in the setup **SHOULD NOT** exceed **10 bar**.
- (v) Before filling H₂ into FBP check safety valve carefully to avoid any possible gas leaking during the reaction. If there is any gas leaking then tight safety valve by using the available tools in high pressure lab or inform Joshi or Sugam.
- (vi) The FBP needs to be flushed with H₂. Open valve **[1]** slowly until the pressure gauge on the FBP shows the desired pressure. Close valve **[1]**. Slowly open valve **[2]** until the pressure gauge on the FBP returns to atmosphere pressure, and then close valve **[2]**. Repeat 10-15 times.
- (vii) Fill the FBP with H₂ to the desired pressure.
- (viii) Close valve **[1]**. Disconnect the hose from the H₂ cylinder.
- (ix) Close the main valve **A**. Release the H₂ remaining in the hose. Valve **A** should remain closed when the cylinder is not in use.

⑤

After the reaction, cool down reaction mixture and open slowly the valves [2] of the FPB to reduce H₂ pressure.

⑥ **Other Tips:**

- (i) Screw FPB tightly by hand (tools are not necessary) to avoid gas leaking.
- (ii) One may use teflon tape to help avoid gas leaking.
- (iii) Always release the excess H₂ pressure of tube after use.
- (iv) Clean the FPB immediately after use do not leave the FPB longer than 1 h in KOH bath for cleaning.

⑦ **Safety:**

- (i) Always use **metal mesh, blast shield** while running the reaction as shown in the figure 1 of setup pictures.
- (ii) Close the **SASH** of fume hood after setting up the reaction.
- (iii) Fill the **emergency contact** form and post it close to the reaction.