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## Do you have a problem with drugs or alcohol?



# Simple Glass to Fancy Glass

by MaDMAx

I had some homework to do, so I was playing with Paintshop Pro instead. Here are some pics I made for you bees with fancy needs, but only simple glass. The first pic is just a numbered list of some simple pieces of glass that can usually be found without resorting to a chem-glass supplier (except maybe for my favorite piece, #7, the double-ended dildo for glassware! ). Sorry if the resolution on the first figure is kind of sucky, I had to shrink it to make sure it would fit on everyone's screen without making them scroll sideways.

Assembling more complex apparati from smaller units is advantageous for many reasons including:

- It is cheaper
- Fewer total glass items cuts down on bulky storage space
- Apparati are often more adaptable to a given situation
- Replacing a broken component is cheaper and easier than replacing or repairing an entire apparatus

Oh, and one more thing, you should always put hose clamps on the hose connections. I didn't bother drawing them in though.

## Simple glass items that can be used to make more complicated equipment

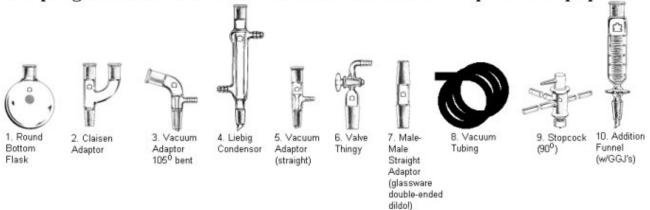


Figure 1. Common, simple glassware items often found at auction sites and other non-supplier places.

#### Pressure equalized addition funnel:

A pressure equalized addition funnel can be make by assembling the components as seen in figure 2.

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## **Pressure Equalized Addition Funnel**

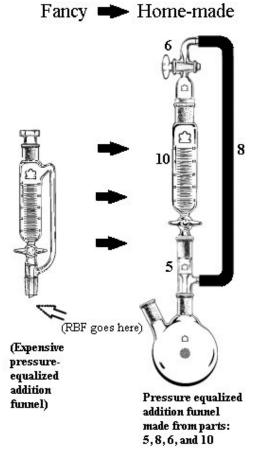


Figure 2. Assembly of a pressure equalized addition funnel.

### Dean-Stark receiver:

Dean-Stark receivers are useful for removing water (or other species) from a reaction via azeotropic distillation while returning the reaction solvent to the flask. Construction of one is diagrammed in figure 3.

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## **Dean-Stark Receiver**

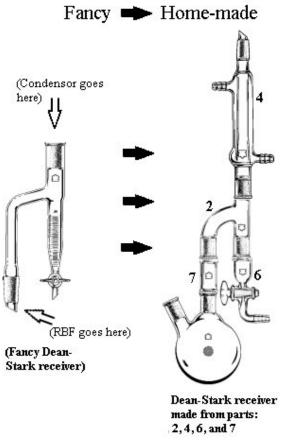


Figure 3. Assembly of a pressure equalized addition funnel.

#### Fraction receiver

Fraction receivers are *very* handy pieces of equipment to have when performing fractional distillations. They allow the changing of the receiving flask without interrupting the distillation (i.e. without releasing vacuum). Figure 4 shows how one can be built.

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## Distillation fraction Receiver

### Fancy - Home-made

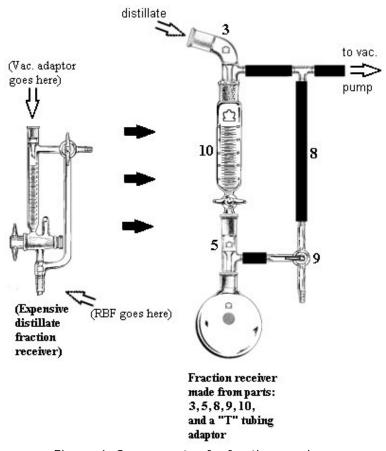


Figure 4. Components of a fraction receiver.

Figure 5 shows the operation of the fraction receiver. When you have distillate coming over (collecting a fraction), you will want to have stopcock #1 open (so that the distillate falls into the receiving flask), and stopcock #2 open (so vacuum is maintained in the entire system.

When the first fraction stops coming over, and the second starts to, you should close #1 (the distillate will stay in the funnel), and close #2 (so that the vacuum is released in the receiving flask). Remove your receiving flask, pour it out into an appropriate container, clean quickly, then re-attach it. Then *slowly* open #2 to pull a vacuum in the receiving flask, but do it slowly so that the vacuum in the rest of the system is not disturbed too much.

Once #2 is all the way open, and the receiving flask evacuated, open #1 to let the next fraction go into the receiving flask.

And repeat as needed.

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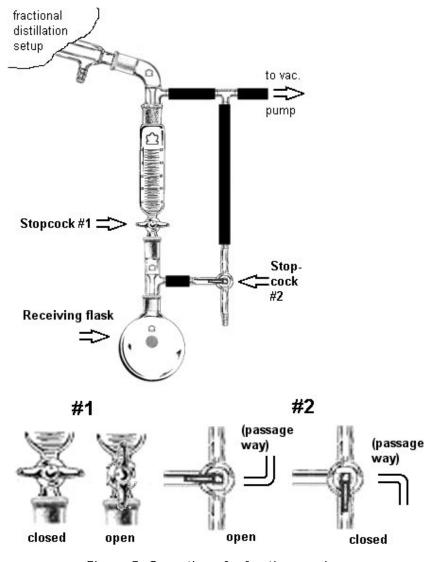


Figure 5. Operation of a fraction receiver.

Important Message for Those With a Substance Abuse Problem: If you or someone you know is suffering from an addiction they need to find a <u>Drug Rehab</u> or <u>Alcohol Rehab</u> so they can recover from their substance abuse addiction. Relapse prevention is important in the <u>addiction treatment</u> process and is critical for long term sobreity. For more information on how to get help with an addiction please call 800-559-9503 to speak directly with a counselor.

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