

# SODA MAKING SYSTEM

I love soda. I love the tingling, and slightly acidic taste of plain carbonated cold water and I like just about any kind of flavored soda. I have my favorites of course, and I prefer to make these myself rather than buying the commercial varieties which contain all kinds of stuff I don't need.

For years I used a rechargeable siphon bottle, the kind that you fill with plain cold water and screw-in a CO<sub>2</sub> cartridge to carbonate the water. This method works just fine and although the price of cartridges is not very expensive, I decided to make my own system for charging not only these siphon bottles which accept CO<sub>2</sub> cartridges, but also to be able to carbonate liquids directly in a plain recycled commercial soda-drink bottle.

So, I made my own system and placed it in the garage. See picture 1 showing the gas tank and the main charging unit.

The basic parts in my system are: a tank of CO<sub>2</sub> gas, a regulator with two gauges, a valve and an assortment of connectors and hoses, as illustrated below.

In order to maximize the flexibility of my system, I decided to use quick connectors for the hoses. This allows me to switch quickly from a hose that I use in the "standard" mode for rechargeable siphon bottles to another that has a cap that fits most commercial soda bottles. There are advantages to either approach, and it depends on whether you like to use a concentrate and dilute it with plain soda water in a glass, or you like to carbonate an existing non carbonated drink. See the list of my favorite home made sodas at the end of this article.

Picture 2 shows a hose used with a plain soda bottle.

Rechargeable siphon bottles come with a charge holder in which you place the CO<sub>2</sub> cartridge and screw the unit into the male thread of the siphon bottle. In my system, I use an empty cartridge, with a hole in the narrow end and a large hole in the back to which I welded a barbed hose connector for connecting the flexible hose. I modified slightly the charge holder so I could insert this assembly in such a way that I could still use it on the siphon bottle as if holding a standard CO<sub>2</sub> cartridge but it is free to rotate without rotating the attached hose.



The complete soda making system with a rechargeable siphon bottle.



By using a different quick-connect hose the system can be used to carbonate liquids in regular commercial soda bottles.

Picture 3 shows the charge assembly threaded into the siphon and picture 4 shows it detached. The quick-connect male end of the hose is shown in picture 5 and the female end including the quick release is shown in picture 6. Note also the valve which shuts the gas flow to the bottle. All hose connections use barbed ends preventing slippage of hoses which are also secured with small hose clamps. Most connectors are brass, as they do not come in contact with any liquid and are safe in this respect. The only exception, shown in picture 7, is where I use a stainless steel part for the cap end of the hose which is used on commercial soda bottles as it may come in contact with the liquid while charging it with gas. Notice also in this picture the ends of the “standard” hose for siphon bottle on the right and the end of the hose with a cap for plain soda bottles on the left. The cap hose uses a stainless steel bolt with a hole drilled through its center with a tight nut on the top side.

Picture 8 shows a close up of the two stage regulator and gauges. Although one can get away with a simpler, one gauge regulator, I prefer to see the pressure both in the Carbon Dioxide container and the working pressure that carbonates the water in my bottles. My preferred working pressure is about 60-70 psi.

Although the above describes a system with quick connectors for added flexibility, the system can be built much simpler without these features. The following shows the parts that are used for a system with fixed connectors for charging a siphon bottle or if the charge holders is replaced with a cap, it can be used for charging plain recycled soda bottles. Look at the pictures on the next page.

Picture 9 shows a visual schematic of a simpler system using fixed connections. Starting on the right side is the regulator with its two gauges. The gauge on the right shows the pressure in the carbon dioxide cylinder (I use a small, 20 lb container) and the gauge on the left indicates the working pressure that I apply when carbonating a drink. This second gauge must be able to go up to about 100 lb/in since I use about 60-70 lb/in of pressure.

Pictures 10 and 11 show a close up of a gauge and a valve respectively and number 12 shows the hose barbs and the PVC hose with reinforced Nylon in a system. Depending on the valve, one can use only one size of hose barbs or two as in example. Finally, picture 13 shows the two cartridge holders and an empty gas cartridge before modifications.

This is a simple and well functioning set up.





My system costs about \$300 but I could have used less expensive parts and perhaps reduced it to \$250 or so. The two major expenses are the 20 lb gas cylinder which I prefer to buy rather than rent and the regulator. The gas lasts me about a year and it cost less than \$20 to refill in 2006. Considering that I use no more than one bottle of soda per day, the cost of the carbonated water is only about 5 cents per bottle. Not bad at all!

Following are some of my favorite home made sodas using the plain carbonated soda water from the rechargeable siphon bottle.

# MY FAVORITE HOME MADE SODA DRINKS USING PLAIN CARBONATED WATER

## 1. Yogurt Soda

This is a wonderful drink which quenches your thirst in summer or winter and is made from about 1/3 glass of yogurt and carbonated water. Add 3-4 spoons of sugar or honey, stir the mixture and add carbonated water to about 3/4 of the glass. Stir a few times, but not too vigorously to mix well, wait until the foam is gone and fill the rest with more carbonated water. I use only pure yogurt that contains no artificial thickeners like gelatin or other additives. I find this yogurt in the health or organic section of my department store. Enjoy!

2. All sodas in this section are made of pure concentrated frozen juices. I use about 1/5 - 1/4 glass of the concentrate and fill the rest with carbonated water. I defrost the juice in the refrigerator. Very delicious!

Concentrated frozen juices I like: Raspberry, Strawberry, Apple, Grape, Kiwi, Mango, Blackberry, Boysenberry, and the combination of any of these, if sold as such.

3. All sodas in this section are made of non-concentrated pure juice sold already as liquid ready to drink. I mix about 1/2 - 2/3 of these juices with carbonated water: Cranberry, Blueberry, Plum, Pomegranate, Guava.

I like to try different things but I must admit that I have tried to make sodas of a few substances which were not very tasty. I am keeping that list away from here...However, once in a while I come up with an idea for a drink, and if successful, I will add it to this list. If you know of something that will make a good soda and which is not readily available on the market, do let me know: shab at easystreet dot com.

I hope you enjoyed my soda article.