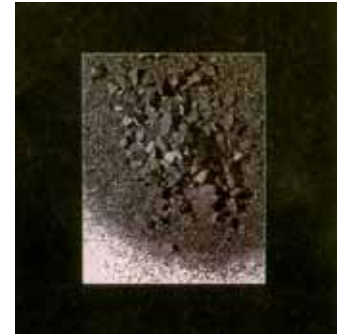


## OPTI-CARB 1200+™

**OPTI-CARB 1200+™** is a superior 'Premium Grade' Granular Activated Carbon (GAC), exclusively available in Hawaii from **AAA BestWater Co.** (The standard industry abbreviation for Granular Activated Carbon is 'GAC'.) **OPTI-CARB 1200+™** is an exclusive Trademark of **AAA BestWater Co.**

The 'specifications' for **OPTI-CARB 1200+™ Granular Activated Carbon** were selected and designed by **AAA BestWater Co.** specifically to be the most effective method to remove **VOCs** (**VOCs such as pesticides, insecticides, herbicides, termiticides, fumigants, solvents, & gas additives**), from a household's water supply. [(VOC) is the scientific abbreviation for 'Volatile Organic Compound' that is used by the scientific community, the **EPA** (Environmental Protection Agency), and the **DOH** (Hawaii Department of Health).]



**Volatile Organic Compounds (VOCs) can be absorbed through the skin's pores and inhaled while taking a Hot Shower, Hot Bath, Washing Dishes, and Standing over a Heated Pot of Water while Cooking!**

It has been said that while taking a hot shower or bath, the amount of volatile compounds inhaled or absorbed through the skin, can be the equivalent of drinking two quarts of water with the same level of contaminant. *Even washing dishes in hot water, or standing over a pot of water while cooking, can give you the same exposure.*



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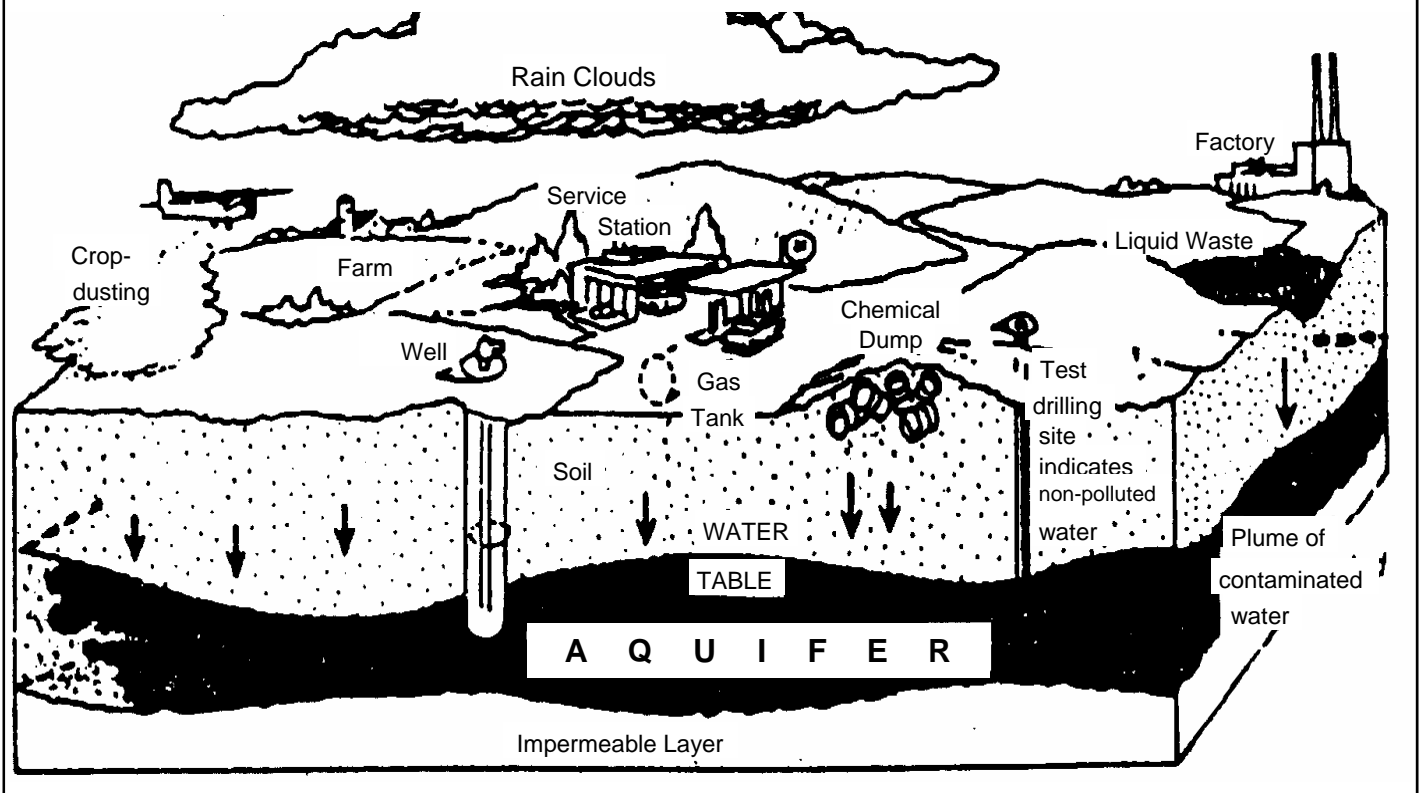
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# OPTI-CARB 1200+™

Many of the types of *pesticides, insecticides, herbicides, termiticides, fumigants, solvents, & gas additives* found in Oahu's ground water supplies are considered "VOLATILE" [**Volatile Organic Compounds (VOCs)**], and therefore will release from the water when they are heated and exposed to the air. In their volatile state, *these compounds can be absorbed through the skin and inhaled.*

## POISONING THE WELL

Hawaii's Groundwater becomes contaminated when toxic material from pesticides, herbicides, insecticides, termite ground treatment, old military leaking underground fuel storage tanks, old commercial leaking underground fuel storage tanks, old military buried chemical drums and toxic waste dumps, old commercial buried chemical drums, community landfills, fuel oil spills from leaking fuel oil transmission lines, waste injection wells, etc., reaches an aquifer. The pollution often forms a "plume" that often goes undetected.



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# AAA BestWater Co.

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## OPTI-CARB 1200+™

### **Coconut Shell Carbon: OPTI-CARB 1200+™**

is a 'superior' Premium Grade *extra hard* highly *microporous* coconut shell carbon specifically manufactured for 'optimum' VOC adsorption.



The 'specifications' for **OPTI-CARB 1200+™ Granular Activated Carbon** were also selected and designed by **AAA BestWater Co.** to be the most effective method to remove **DBPs (Disinfection Byproducts)**. **Naturally Occurring Organic Backgrounds (NOBs)** reacting with chlorine during the disinfection process *create chlorinated chemicals* commonly referred to as **Disinfection Byproducts (DBPs)**.

Common **DBPs** of concern are **Chloroform**, **HAA5 (Total Haloacetic Acid)** and **Trihalomethanes (TTHMs)**, *because they are suspected carcinogens (cancer causing agents)*. [All water supplies on Oahu used for human consumption *are disinfected with chlorine* by the Board of Water Supply, as required by the DOH & EPA.]

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# AAA BestWater Co.

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In April 1983, local TV news programs, reported that the Mililani Wells were contaminated with FOUR different **VOCs (Volatile Organic Compounds)** ≥. That was the first time any well contamination was revealed to the public. **What the public didn't know at that time**, was that the *Hawaii Department of Health and Honolulu Board of Water Supply* already knew in **February of 1981**, that the Mililani Wells were contaminated with VOCs. ... **and**, they also knew, **as far back as April of 1977**, of the first known well contamination on Oahu, that occurred in Waipahu — **with extremely high levels of VOC contamination**. The *Hawai'i Department of Health and Honolulu Board of Water Supply* did not reveal to the public what they knew about well contamination until many years later, and then only limited information was revealed to the public. **The facts were only fully revealed to the public in 1993, not by the State, or City, or the Hawaii Department of Health, but by the NATURAL RESOURCES DEFENSE COUNCIL / 1993 Publication 'Groundwater In Hawai'i' ] This publication is a must read for every resident of Oahu — anyone who reads this publication will be shocked and appalled to find out what wasn't revealed to them by the responsible agencies at the time — the extent of contamination, the number of different contaminants, and the health effects associated with exposure to those contaminants.** To see the publication and get all the shocking facts and history of Oahu's well water contamination . [click here](#) ≥

Does this scenario of *government water suppliers* not revealing the extent of water contamination and related health effects to consumers, and telling the public that the water supplies are perfectly healthy and safe, 'sound familiar' ? ? ? **Have you ever seen the movies 'Erin Brockovich' with Julia Roberts and 'A Civil Action' with John Travolta?**

**Today, over 191 wells on Oahu are contaminated with many different VOCs— Virtually all the wells that can service most of Oahu's areas:** North Shore-Mokuleia, Waialua, Haleiwa, Waimea, Pu-pukea, Sunset Beach; Wahiawa; Mililani Town; West Oahu-Waianae; Kapolei-Ko'Olina, Makakilo, Ewa, Ewa Beach; Waipahu-Royal Kunia, Village Park, Waikele, Seaview, Crestview, Waipio; Pearl City; Aiea; Foster Village; Salt Lake; Moanalua Valley; Kalihi; throughout town to Wilder area; McCully; Kaimuki; St. Louis Heights; Palolo Valley; Maunalani Heights; Wilhelmina Rise; Diamond Head; Kahala; and East Oahu-Waialae Nui, Kalani Valley, Waialae Iki, Aina Haina, Hawailoa Ridge, Niu Valley, Kuliouou, Hahaione Valley, Mariners Ridge, Port Lock, Hawaii Kai, Kalama Valley, Queens Gate; & Waimanalo.

**In addition, virtually all the water distributed throughout Oahu, contains up to THREE different DBPs. ≥**

**In addition, virtually all the water distributed throughout Oahu, contains various levels of NITRATE. ≥**

**Please see the following pages for current information on the Water Quality Issues for your area . . .**

## OPTI-CARB 1200+™

The 'specifications' for **OPTI-CARB 1200+™** were selected and designed as a result of **AAA BestWater Co.'s** extensive research on the different 'GAC' types, grades, sizes and qualities, and **AAA BestWater Co.'s** consultation with 'GAC' development technicians and scientific experts on the most effective way of removing the VOCs & DPBs found in Hawaii's water supplies.

**OPTI-CARB 1200+™** is manufactured with the most current scientifically accepted 'GAC' technology and most advanced production methods, and shipped directly to **AAA BestWater Co.**, where it is then assembled into the **AAA-Pure OPTI-CARB 1200+™ GAC Down-Flow Filter/Purification System**, at **AAA BestWater Co.'s** local facility.

The **AAA-Pure OPTI-CARB 1200+™ GAC Down-Flow Filter/Purification System** with **OPTI-CARB 1200+™** is designed to be *the most optimally effective way* to meet Hawaii's water contamination concerns — namely, **the Non-Cancer Causing Health Effects**, as well as, **the Increased Cancer Risk** from exposure to several — *or even just one* — of the many VOCs found in Hawaii's water supplies. The most recent scientific research available has indicated that, **when combining just TWO (2) VOCs together, the effects of the body being exposed to two (2) VOCs together can be as much as 1,000 times more dangerous as being exposed to just one 'VOC'**. (There are some areas of Oahu where *residents are being exposed to as many as TEN (10) known VOCs.*)

*However, it is possible that there are other unknown VOCs in the water supplies, in addition to the known VOCs, because they are not being tested for, nor looked for by the local DOH (Dept. of Health), because they are not required to by the Federal Government, and also due to the lack of funding within the appropriate Federal and Hawaii government agencies. [The EPA currently regulates only 85 substances. Of those 85 regulated substances, only 52 are for Organic Chemicals— such as pesticides, insecticides, herbicides, termiticides, fumigants, solvents, & gas additives. That's less than 52 of the 4,500 registered pesticides, insecticides, & herbicides used in Hawaii. (SOURCE: Supervisor of the State's Drinking Water Program, Honolulu, Sunday Star-Bulletin & Advertiser, November 16, 1986.) And, that's not counting all the other types of toxic substances used by business, industry and the military in Hawaii.]*

**NOTE:** VOC levels in Hawaii's water supplies used for human consumption are within either the EPA or Hawaii DOH's MCL's (maximum contaminant levels.) *However, the big question is, do we really know if those standards ≥ are truly safe? Are you willing to have your family — your children — exposed to that many VOCs even at those contaminant levels?*

— Continued on Following Pages —

**AAA BestWater Co.**

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## What You Should Know About Coconut Shell Based Carbons In Water Treatment Applications

This note addresses the issue of using highly microporous carbons in water treatment applications.

**Coconut shell based activated carbons properly sized for water treatment applications have significantly higher surface areas and smaller average pore diameters when compared to coal based carbons and will on a pound for pound basis out perform the coal based carbons by between 20—40%. *The significant advantages of the coconut shell carbons over coal based carbons with respect to contaminant adsorption capacity and retentivity can result in a significant cost savings to the user.***

**Coconut shell activated carbons are the premium carbon for use in both liquid and gas phase adsorption applications.** They have surface areas that are typically greater than 1200 m<sup>2</sup>/g. This is significantly more than the 900—1050 m<sup>2</sup>/g surface areas exhibited by good quality coal based carbons. The greater the surface area of an activated carbon means more sites will be available for adsorption. The greater the number of sites, the higher the loading capacity of the carbon and, consequently, the lower will be the GAC usage rate. **The effectiveness of coconut shell carbons when compared to coal based carbons becomes greater as the concentration of the contaminant in the water stream is decreased and as the contaminant becomes more water soluble and more difficult to adsorb.** This is because as a result of having a higher surface area, coconut shell carbons also exhibit smaller average pore diameters. ***The smaller pores mean a stronger interaction between the carbon surface and the contaminant being adsorbed. The result is a higher retentivity of the contaminant by the carbon, i.e., what has adsorbed has more of a tendency to stay adsorbed.***

People have expressed concerns that the micropores present in coconut shell carbons are too small to accommodate the many organics that are present in a water stream and therefore only a coal based carbon should be selected for these applications. ***Most constituents present in water stream are readily adsorbed by coconut shell carbon. Coconut shell carbons typically have a surface area that is significantly greater than what is seen with a typically coal based carbon.*** Most of this increased surface area is in the micropore region of the coconut shell carbon. The average pore diameter for a high quality coconut shell carbon is between 15 and 20-angstrom units, coal based carbon are typically 2—4-angstrom units larger. The average molecular sizes for many typical organics found in water are between 4 and 8-angstrom units (estimated based on Van der Waals radii) ***and therefore would be easily accommodated by the micropore structure of the coconut shell carbon.***

The presence of humic acids and other large macromolecules in a water stream present a problem for both microporous and macroporous carbons because these large molecules diffuse very slowly in water and have a tendency to adsorb on the outer surface of the carbon particle. By adsorbing in the surface of the carbon particle, these molecules can reduce access to the internal micropore structure and thereby decrease the adsorption capacity of the carbon. While coconut shell carbons are more sensitive to surface adsorption and lose capacity more quickly when compared to coal carbons, **studies have shown the ultimate capacity of the coconut shell carbons is still greater because of its higher initial adsorption capacity.**

Except where color removal or the removal of large molecules from a water stream is required, **coconut shell activated carbons can almost always be substituted for coal based carbons and the result will be higher adsorption capacities and lower GAC usage rates.**

James R. Graham, Ph.D.,\* August 1999

# Why Choose AAA BestWater Co.



*A Kama`aina Company Since 1983*

*Celebrating Over A Quarter of a Century Serving Hawaii! (26 Years!)*

◆ *Experience* ◆ *Professionalism* ◆ *Reliability*

- ◆ **Serving Oahu longer than any other Water Treatment Systems Dealer**
- ◆ **More experience than any other Oahu Water Treatment Systems Dealer**
- ◆ **More systems installed than any other Oahu Water Treatment Systems Dealer**

*We have Installed & Serviced many, many thousands of different Systems*

- ◆ **Installations by: Experienced, Professional, Licensed Plumbing Contractors**

- ◆ **Best Service**
- ◆ **Best Selection**
- ◆ **Best Prices**
- ◆ **Best Value**
- ◆ **Best Quality**
- ◆ **Best Warranties**
- ◆ **Best Guaranties**
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***Guaranteed!***

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