

# Gull Lake Group Research

## Household Products

Here is a list of detergents that are phosphate free. Superstore has just regular detergent available without the phosphate. The Earth's General Store also has phosphate free detergents, they are more expensive because they are made of natural ingredients and are environmentally friendly, and some of the products also have added benefits such as the Nature Clean laundry detergent, which is also, Hypoallergenic. I included a link to their web site so you can find out more information about the products. Tide and Arm and Hammer are two more products I found that had a phosphate free product available, I found them at Safeway but I would assume that any other grocery store with Tide products would also have the phosphate free option available. As far as phosphate free dish washer detergent goes the only place that offered anything was the Earth's General Store in Edmonton.

## Laundry Detergents

- Superstore
  - No Name Ultra Lemon Fresh laundry detergent phosphate free
    - 1.1kg, 12 loads: \$2.98
    - 3.3kg, 37 loads: \$5.93
    - 5.5kg, 62 loads: \$8.98
  - No Name Liquid Laundry detergent phosphate free
    - 5.9L, 45 loads: \$16.99
    - 1.9L, 14 loads: \$4.88
- Earth's General Store (ie. White Ave. Edmonton) [www.earthsgeneralstore.com](http://www.earthsgeneralstore.com)
  - Laundry Detergent
    - The bulk detergents only require the use of about 2oz for a small load and 4oz for a large load of laundry
    - Ecover
      - 2.95L, 40 loads: \$24.00
    - Nature Clean
      - 3L, 50 loads: \$16.50
      - bulk: \$4.50/kg
    - Biovert
      - 3.7L, 75 loads: \$19.50
      - bulk: \$4.25/kg
- Arm and Hammer
  - Essentials
    - 2.95L, 32 loads: \$5.99
- Tide
  - Nature, Free Sensitive Skin
    - 5.9L, 64 uses: \$17.99
    - 2.95L, 32 uses: \$8.99
  - Free Ultra
    - 2kg, 37 uses: \$8.97
  - Original Tide Nature
    - 3.2kg, 34 uses: \$8.97

## Dishwasher Detergents

[www.komoradio.com/news/archive/4145681.html](http://www.komoradio.com/news/archive/4145681.html)

Above is a link to a article on dishwasher detergents. Consumer Reports tested three phosphate-free detergents--**Trader Joe's**, **Seventh Generation** and **Ecover Natural**-- and found that these environmentally friendly powders can do a very good job of cleaning dishes. It seems the enzymes are more important than the phosphates.

Through this web site [www.dcpfosphatefree.org](http://www.dcpfosphatefree.org) you can order and find out more about phosphate free detergents, you can also call them at (920) 746-4450 and order it directly. They have a variety of different products available with phosphate free dishwasher detergents, which includes:

- Citrus Magic Gel, Ecover, Seventh Generations, Shaklee Powder, Sun and Earth Tablet, Trader Joe's Automatic Dishwasher Detergent, and Wave.
- I did not have the time to seek out stores in Alberta that have these products so just keep your eyes open for some of these products.
- **Earth's General Store** (ie. White Ave. Edmonton) [www.earthsgeneralstore.com](http://www.earthsgeneralstore.com)
  - Dishwasher Detergent
    - Ecover
      - 1.36kg, 38 loads: \$10.50
      - 25 tablets: \$9.25
      - bulk: \$6.00/kg
    - Nature Clean
      - 1.8L: \$12.75
      - bulk: \$4.50/kg
      - 1.8kg, 42 loads: \$12
    - Biovert
      - 1.5L: \$10.50
    - Earth Friendly
      - 1.18L: \$7.75

## Low Flush/Dual Flush Toilets

<http://www.terrylove.com/wc/ultramax.htm>

<http://www.terrylove.com/crtoilet.htm>

[http://www.caroma.com.au/products/index\\_profile.html](http://www.caroma.com.au/products/index_profile.html)

[Click Here](#)

I have included some links above that have provided some useful information on low flush/dual flush toilets. The technology as far as North America goes has not been that great and many of the products have problems that can not easily be over looked, specifically problems associated with plugging and the only way of fixing it is by getting a plumber to snake it out. The link and article below talks more about Low flush toilets and how effective they are. In general though the consensus on these toilets is that you should either go with a Toto which is made in the United States or a Caroma which is made in Australia. Choosing one of these two companies is your best bet since they have a good track record of being trouble free. The Australians along with the Europeans are way ahead in this technology department because they understand the need for

water conservation, check out the Caroma web site, which has some very innovative designs for toilets in general. The two most likely models to go with are the Caroma Caravelle for the dual flush technology and the Toto Ultramax for the low flush.

The following information is from a research project done by the Canada Mortgage and Housing Corporation on low flush toilets.

“ Toilets purchased from retail outlets can cost from as little as \$70 to more than \$1,000. Again, the difference in cost is more related to design than to performance. The retail costs of the toilets used for this project were approximately \$160 for the Aris 6-litre, \$170 for the Flapperless 6-litre, \$300 for the Drake, \$300 for the Tasman dual-flush and \$400 for the Caravelle dual-flush.” Here is a link to see the complete research report done by the Canada Mortgage and Housing Corporation

<http://www.cmhc-schl.gc.ca/publications/en/rh-pr/tech/02-124-e.html>

### **Caroma**

[www.caromausa.com](http://www.caromausa.com)

Cronkhite Supply Ltd. and Wolseley are the main distributors of Caroma products in Alberta. There is at least one of these two stores in each of the major towns and cities in Alberta. In Red Deer the Wolseley is on 7635 48<sup>th</sup> avenue and the phone number is (403) 342-2255

### **Toto**

[www.totousa.com/trade\\_landing.asp](http://www.totousa.com/trade_landing.asp)

Kitchen and Bath Classics, Red Deer, 6782 50<sup>th</sup> ave.  
Check the web site to find other distributors in Alberta

Prices from the Kitchen and Bath Classics store in Red Deer, this should give a general idea on much it will cost to install these brands of toilets.

Caroma Caravelle

- dual flush one piece: \$711
- dual flush two piece: \$490
- These models are fairly expensive but they are also very reliable. They will offer excellent water conservation and be trouble free of any problems with plugging

Toto

- dual flush model: \$495
- low flush toilets start at between \$290 and \$325 and become as expensive as you like

<http://www.caromausa.com/testimonial/LowFlushToiletsThatWork.pdf>

Low flow toilets: do they work? do they not work? This is an ongoing very interesting debate. You may want to come back to this database entry because I will be updating it as things are changing rapidly. So what am I really talking about?

The average Canadian household uses between 7 hundred and 11 hundred litres of water every day, and about 40% of that is flushed down the toilet. Our need for water conservation, both reducing the use of water and reducing the cost of treating sewage, demands that we find ways to reduce the quantity of water that we send down the toilet. Dual flush is one of the brightest ideas in this field, where there are two options on the toilet, a full flush and a half flush depending upon whether we need to get rid of solid matter or not. This technology has been used around the world for years, although it is only beginning to be introduced into North America -- the land of too abundant water. Even before adopting the intelligent "dual flush" concept, North American municipalities and even states and provinces have begun to legislate "low flush", where the total quantity of water used by the toilet is radically reduced, from over 20 litres to 13 litres

and now most low flush requirements are for 6 litres per flush. Dual low flush can give you a 6 litre / 3 litre choice. Great for water conservation.

But the first North American efforts at low flush were a terrible failure, the solids rarely got out of the toilet without flushing two or three times. So the manufacturers went to work to perfect the smoothness of the inner walls of the toilet trap, and employed various techniques to get the siphon action to work more quickly. Finally the higher end toilets succeeded in getting the solids out of the toilet almost all the time, but the cheaper toilets still have problems. Despite the slow technological progress, municipal, provincial and state jurisdictions ran ahead passing legislation requiring the installation of toilets that many said weren't reliably getting rid of sanitary waste.

So the debate was started. The governments who pay for water and water treatment insisted that we move forward. Ecologists applauded. Homebuilders struggled with consumer complaints. Plumbers who clean out drain lines reported record earnings. Consumers who talked to me at home shows complained continuously. (Of course I never heard from those who had no problems.)

The Canada Mortgage and Housing Corporation is studying the dual flush systems, reporting good results. As for drain lines, they feel there is no real problem. On the other side, the Canadian Water & Wastewater Association did a study of low flush toilets that was reported in the September issue of Plumbing & HVAC, indicating that two-thirds of the six-litre toilets failed tests as defined by the CSA (Canadian Standard's Association) that they ran themselves. The CSA indicated that because of this study they would take a second look at the whole issue. And the Australians are laughing in their beer.

Why are the Australians laughing? First understand that Australia is mostly desert -- not much water. When they decided to look at reducing water use in toilets they set up a major research project which had one component that we seem to have totally skipped in North America. The toilet and all the waste lines attached to it form a single system. If the toilet works but the drain doesn't, then the system doesn't work. In North America we seem to have taken the position that the plumbing manufacturers are making toilets that get the waste out of the bottom of the toilet, and after that it is not their problem. It is a different plumber who cleans out clogged drains.

It took the Australians about two weeks of research to realise that low flush and siphon technology don't work together. The problem with a six litre siphon system (which represents almost all our present toilets from North American manufacturers) is that almost all the water is used to suck the solid waste out of the toilet. You can see this as it spins and flows and at the last minute, if you are lucky, it sucks the solid waste down the drain, but there is little left to flow it down to the street. As you can see in the first photo, we demonstrated adding waste to the horizontal line after most of the water has passed.

The duck is left sitting half way down the line waiting to dry. Sure, this is a TV studio demo with a rubber duck, but our Australian guest confirmed that this did in fact correspond to what they filmed in real drain lines. If someone uses the toilet again before this stuff dries up and sticks, then the water leading the second flush will move this earlier flush on through the system. The second guy's flush takes care of the first guy's stuff ! When I heard this, many stories that I have heard began to make sense. Most of the clogged lines seem to be in little used toilets, like the one in the guest bedroom, or the blockage after you get back from vacation. Here there was no "second" flush to take care of the "first" stuff.

The Australians immediately began to study a European technology they call "Wash Down". The toilet trap is very large for minimum resistance, so large that you could not even dream of creating a siphon. No water is sent ahead of the waste, but rather all the water is dumped on top of the waste. Note how deep and steep the sides of the toilet are in the Caroma toilet in the photo. This means that the solid waste is surfing the wave of

all six litres, right down to the city sewage line. The horizontal line is cleared every time, nothing is left to dry and clog. 85% of all toilets in Australia work on this principle. In addition, the Caroma toilet has the dual flush mechanism, six litres for number 2, three litres for number 1. Since people do number 1 more often than number 2, the average flush is 4 litres. This is water conservation, without clogged sewage lines.

What are the downsides of each system. The wash down system has less water in the bottom, hence a brush is usually kept near the toilet to eliminate skid marks -- something found common and acceptable in Europe and Asia, and generally unacceptable in North America. The siphon system, especially with low flush, has far more sewage blockages and hence a plunger is usually kept near the toilet and accepted as normal in North America and totally unacceptable in Europe and Asia. Oh how lifestyle and culture can dominate technology. However, both of these inconveniences deal only with the toilet bowl itself. A six litre siphon flush does not take the waste through the horizontal drain line. A six litre wash down flush does.

Even if our North American low flush toilets are working 80% of the time, to my way of thinking, 20% clogging is unacceptable from a health point of view, especially when we discover that a more sanitary technology is available. In addition, brushing the bowl occasionally is a lot cheaper than calling in a plumber to snake out the horizontal line. For some reason our North American industry is insisting on trying to get the siphon technology to work way beyond it's technological capacity when we consider both the toilet and the horizontal drain lines as a single system. Siphon technology works most of the time at 6 litres (probably because other water flows in the house are helping out), wash down technology works all the time at 6 litres. I think that the Australians are going to steal the new toilet market until North American toilet manufacturers admit that they are working hard in the wrong direction.

### **Compost Toilet**

<http://www.cityfarmer.org/CFcomposttoilet.html>

<http://www.sun-mar.com/index.php>

Above are two links on compost toilets, they require no power or water. Sun-mar is the only company I have found building these products and from searching the Internet it also appears to be a quality product that works very well. The technology is very good and there is apparently no odor due to the ventilation that is attached and probably also due to the wood chips that are added as a bulking agent. The finished product comes out clean as a nice compost the toilet only requires that you turn it once every couple of weeks. Check the web site for more information and locate a dealer near you, here are some of the dealers in Alberta:

- Rocky Mountain Coop, Rocky Mountain House
- Stony Plain Coop, Stony Plain
- Smith Hardware, Winfield
- Rona Home Centres Inc., Edmonton; 17303 100<sup>th</sup> ave.
- Rona H&G, Calgary; 9630 Macleod Trail
- Home Depot 7063, Calgary; 6500 Macleod Trail
- Chesney Home Hardware, Calgary

### **Pressure Assist Toilets**

This is also another option that may be available on low flush toilets or regular toilets, the only draw back is that they can be very noisy.

## **Recycling Plastic**

*Why are other plastic jugs and bottles of similar plastic (HDPE #2) not accepted into this program?*

There is a cost to recycle. In this program, Alberta Dairy Processors of fluid milk products financially support the Milk Container Recycling Program. This is what is meant by Industry Stewardship - being responsible for the waste that is generated as a result of a product being sold to the consumer. It would be unfair to expect the Alberta Dairy Council to pay for recycling a container that did not hold its product.

I did not have enough time to look further into recycling plastics.

## **Prescription Drugs in the water**

[www.alternet.org/environment/43242](http://www.alternet.org/environment/43242)  
[www.covancecruelty.com/pdfs/CovanceWater.pdf](http://www.covancecruelty.com/pdfs/CovanceWater.pdf)  
[www.campusecology.wsu.edu/te\\_review\\_of\\_ppcps.pdf](http://www.campusecology.wsu.edu/te_review_of_ppcps.pdf)

Above are articles that shows the increasing concern regarding the disposal of prescription drugs into our water systems. They should be returned to where you purchased them so they can be safely disposed of. Most treatment plants are not set up to treat for pharmaceuticals and even the most advanced ones that are set up for it were not able to remove some of them. There are already studies that have shown the adverse effect of pharmaceuticals on the aquatic wildlife found in our rivers. I was not able to find any direct information on the degradation rate of pharmaceuticals, but I would suspect that because they are man made and use unnatural processes to create that they are more difficult to degrade. They may stay persistent in the environment or take a long period of time to breakdown, which we have seen with other man made products such as pesticides. Since we use them for medication the drugs are probably created to resist breakdown for an extended period of time so that they remain effective until we use them. They are also created so that our bodies break them down in order to be utilized for their specific purposes. So I would suspect that if they were unused and disposed of in our water systems, that they would dissolve but lack the enzymes that our bodies provide in order to break them down and therefore stay persistent in the environment. This of course is only my opinion based on my limited knowledge and could be wrong. Below is an abstract of a study that dealt with the breakdown of pharmaceuticals in water.

[www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list\\_uids=12871743&dopt=Citation](http://www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=12871743&dopt=Citation)

Note:

This research was done while the author of the research was working for the Red Deer River Watershed Alliance