



## REVERSE OSMOSIS SYSTEM

**SWT's BioMaster Reverse Osmosis System** provides quality RO filtered water as well as bacteria and virus sterilization for the most complete, affordable, high purity drinking water treatment available to the homeowner. For pennies a day, the BioMaster will deliver better than bottled water quality.



*A maintained BioMaster Drinking Water System means you will never have to worry again about the quality of your water supply.*

### FEATURES INCLUDE:

- Sediment filtration to remove particulate matter (grit, sand, sludge, silt, etc.).
- A special heavy metal pre-filter cartridge designed to extend the life of the RO membrane (a unique Safe Water Technologies design feature).
- Heavy metal filtration (lead, iron, zinc, etc.).
- Carbon pre-filter and carbon post-filter for the removal of chlorine, taste, odor, color, pesticides, and a whole list of chemical compounds deemed unhealthy by the EPA.
- A reverse osmosis membrane for ultra-fine (molecular) filtration. Primary agents filtered are sodium, nitrates, lead, fluoride, copper, iron, mercury, cryptosporidium, cysts, and arsenic. The RO element in the BioMaster System will remove 93% to 99+% of these and other compounds.
- An ultraviolet disinfecting chamber that sterilizes viruses, bacteria, mold, algae, and other harmful microorganisms.
- Deluxe long reach air gap faucet
- Large water reservoir
- All hardware necessary for installation

# BIOMASTER PERFORMANCE SPECIFICATIONS

With proper installation and maintenance, the RO membrane module in the SWT BioMaster Reverse Osmosis System will reject the following substances from tap water:

Arsenic	94-96%
Barium	96-98%
Bicarbonate	95-96%
Boron	60-70%
Bromide	93-96%
Cadmium	96-98%
Calcium	94-97%
Chloride	87-95%
Copper	98-99%
Cyanide	86-95%
Fluoride	94-96%
Hardness	95-98%
Iron	95-98%
Lead	96-98%
Magnesium	96-98%
Manganese	98-99%
Mercury	96-98%
Nickel	98-99%
Nitrate	90-96%
Phosphate	96-99%
Potassium	87-97%
Pyrogen	98-99%
Selenium	96-98%
Silica	85-90%
Silicate	95-97%
Silver	95-97%
Sodium	87-98%
Strontium	96-98%
Sulfate	98-99%
Zinc	98-99%

...plus more. The RO membrane module will also aid in the removal of color, asbestos, and cysts such as giardia and cryptosporidium.

Contact your SWT representative for more details.

The SWT BioMaster Reverse Osmosis System is much more than an RO system. It has been designed to work on water that has chemical and bacteriological contamination also. The carbon filtration modules will remove, or significantly reduce, over 50 chemical substances that the EPA has deemed potential carcinogens. They include:

Adipates(diethylhexyl)	Chromium (+3)	Endrin	PCB's
Alachlor	Chrysene (PAH)	Ethylbenzene	Sediment
Aldicarb	Dalapon	Ethylene dibromide(EDB)	Simazine
Aldicarb sulfone	Di (2-ethylhexyl) adipate	Glyphosate	Styrene
Aldicarb sulfoxide	Dibenz (a,h) anthracene	Heptachlor	3,7,8-TCDD (dioxin)
Atrazine	Dibromochloropropane	Heptachlor epoxide	2,4-D
Benz (a) anthracene (PAH)	Dichlorobenzene (meta-)	Hextachlorobenzene	2,4,5-TP (silvex)
Benzene	Dichlorobenzene (ortho)	Hextachlorocyclopentadiene	TCB's
Benzo (a) pyrene (PAH)	Dichlorobenzene (para-)	Indo (1,2,3-c,d) pyrene (PAH)	TCE's
Benzo (b) floranthene (PAH)	Dichloroethane (1,2-)	Lidane	Tetrachloroethylene
Benzo (k) floranthene (PAH)	Dichloroethylene (1,1-)	Mercury (organic complexes)	Thallium
Beryllium	Dichloroethylene (cis-1,2-)	Methoxychlor	THM's
Butyl benzyl phthalate (PAE)	Dichloroethylene (trans-1,2)	Monochlorobenzene	Toluene
Cadmium	Dichloropropane	Organic color	Toxaphene
Carbofuran	Diethylhexyl phthalate (PAE)	Organics	Vinyl chloride
Carbon tetrachloride	Dinoseb	Oxymal	Xylenes
Chlordane	Diquat	Pentachlorophenal	
Chlorine	Endothall	Picloram	

After the water has been filtered down to the sub-micron level, the water then enters an ultraviolet sterilization chamber where any viruses, bacteria, mold, and other living microorganisms are bombarded with special, intense light of a specific wave length. The UV light penetrates the wall of the organism and attacks DNA structure leaving the organism unable to reproduce (or "dead"). UV technology is recognized by the EPA as one of four approved methods of sterilizing water, and is preferable over the other three methods (chlorine, iodine, and distillation) due to cost of treatment and the effectiveness of UV (UV works almost instantaneously, leaving no residuals or chemicals in the water). The replaceable UV lamp operates for a full year at  $\geq 30,000$  microwatt sec/cm<sup>2</sup>. As a point of reference, the following table (right) is a list of common bacteria and viruses, and the dosage required to render them harmless.

<b>BACTERIA</b>		<i>Shigella dysenteriae</i>	4,200
<i>Bacillus anthracis</i>	8,700	<i>Shigella paradysenteriae</i>	3,400
<i>B. Megatherium sp (veg.)</i>	2,500	<i>Spirillum rubrum</i>	6,160
<i>B. Megatherium sp. (spores)</i>	5,200	<i>Staphylococcus albus</i>	5,720
<i>B. paratyphosus</i>	6,100	<i>Staphylococcus aureus</i>	6,600
<i>B. subtilis</i>	11,000	<i>Streptococcus hemolyticus</i>	5,500
<i>B. subtilis spores</i>	22,000	<i>Streptococcus viridans</i>	3,800
<i>Clostridium tetani</i>	22,000	<i>Vibrio cholerae</i>	6,500
<i>Corynebacterium diphtheria</i>	6,500	<b>MOLD SPORES</b>	
<i>Dysentery bacilli</i>	4,200	<i>Mucor racemosus A</i>	35,200
<i>Eberthella typhosa</i>	4,100	<i>Mucor racemosus B</i>	35,200
<i>Escherichia coli</i>	6,600	<i>Oospora lactis</i>	11,000
<i>Leptospira</i>	6,000	<i>Penicillium expansum</i>	22,000
<i>Micrococcus candidus</i>	12,300	<b>PROTOZOA</b>	
<i>Micrococcus spheroids</i>	15,400	<i>Chlorella vulgaris (algae)</i>	22,000
<i>Mycobacterium tuberculosis</i>	10,000	<b>VIRUS</b>	
<i>Neisseria catarrhalis</i>	8,500	Bacteriophage ( <i>E. coli</i> )	6,600
<i>Phytomonas tumefaciens</i>	8,500	Hepatitis virus	8,000
<i>Proteus vulgaris</i>	6,600	Influenza virus	6,600
<i>Pseudomonas aeruginosa</i>	10,500	Polio virus	6,000
<i>Pseudomonas fluorescens</i>	6,600	<b>YEAST</b>	
<i>Salmonella</i>	10,000	Bakers' yeast	8,800
<i>S. enteritidis</i>	7,600	Brewers' yeast	6,600
<i>S. typhimurium</i>	15,200	Common yeast cake	13,200
<i>S. typhosa</i>	4,100	<i>Saccharomyces cerevisiae</i>	13,200
<i>Sarcina lutea</i>	26,400	<i>Saccharomyces ellipsoideus</i>	13,200
<i>Serratia marcesens</i>	6,160	<i>Saccharomyces sp.</i>	17,600

## GENERAL INSTALLATION AND SERVICE PARAMETERS

The BioMaster will work at peak efficiency on either municipal or ground water supplies that do not exceed the following:

Maximum psi	125 lbs
TDS	1800 ppm
Iron	0.4 ppm
Hardness	17 gr/gal
H2SO	0.05 ppm
Manganese	0.1 ppm

The SWT BioMaster has been designed to give many years of trouble free service. To keep the system operating in peak efficiency, it is recommended that the unit be inspected every 6 months for possible pre-filter sediment clogging (especially if there is a lot of sediment in your water supply). Manufacturer recommends that the system be serviced on an annual basis

to replace the carbon filtration modules and the RO membrane module.\*

\* The RO membrane module will last for a much longer period of time on relatively good water. Check with your Water Treatment Professional for local water characteristics and testing.

