

NanOpurTM Extreme



Presentation of an innovative water filtration system

The **NanOpurTM Extreme** is a portable device for the filtration and purification of fresh water (Patent Pending).

It is a light (7kg), portable, resistant, ecological device specifically conceived to pump fresh water (including polluted water) and to produce water of maximum purity for human consumption without chemical additives.

The 6 levels of filtration with a fineness of 0.1 nanometre (Reverse Osmosis) and the bacterial disinfection by ultraviolet rays (UVc) eliminate a maximum of micro-organisms found in waste pollutants, viruses and bacteria and provide pure water in all circumstances.

NanOpurTM Extreme can process 1500 liters* of pure water (between 15 to 18 liters p/h) and, with a weight of 7kg, is easily transportable in a mountain bag.

**With a set of 2 replacement filters (weighing 200 gr) the amount can be doubled to approximately 3000 liters of pure water.*

The **NanOpurTM Extreme** can be used for expeditions, rescue parties, humanitarian missions, mountaineering, caravanning and camping cars, cabins, camping, private housing, bungalows, islands, gardens, beaches, terraces, open-air events and in many other circumstances. The device is connected by 12 volts to a cigar lighter found in all types of cars and can also be used with portable solar energy providers such as iLAND Everywhere or others.

Data on Reverse Osmosis

Developed by NASA, the Reverse Osmosis process produces pure water, ideal for drinking and cooking, without altering the taste of food.

The natural carbon-active filtes and the Reverse Osmosis membrane TFC will eliminate, depending on their nature, up to + 99% of bacteria and viruses as well as other noxious elements found in water (see table below). By this process, Reverse Osmosis also eliminates on a chemical basis ALL pollutants. Its prime purpose is therefore to protect your health by assuring alimentary and sanitary protection.



Elements filtered & rejected	%	Elements filtered & rejected	%	Elements filtered & rejected	%
Ammonium	85-95	Dioxine (Dioxin)	92-96	Plomb (Lead)	95-98
Aluminium	97-98	Fer (Iron)	97-98	Polyphosphates	98
Argent (Silver)	97-99	Fluorures (Fluoride)	93-95	Potassium	95-97
Arsenic	97-98	Hormones	99.9	Radioactivité (Radioactivity)	95-98
Bactéries (Bacteria)	99.9	Ions radioactifs (Radioactive ions)	93-97	Silices (Silica)	85-90
Brome (Bromine)	93-96	Magnésium	95-98	Silicates	94-96
Cadmium	95-98	Manganèse	94-97	Sodium	94-98
Calcium	95-98	Mercure (Mercury)	95-97	Sulfates	95-98
Chlore – Chlorides (Chlorine)	95-98	Nickel	97-98	Thiosulfates (Thiosulphates)	97-98
Chloroforme (Chloroform)	98	Nitrates	98-100	Trichloréthylène	98
Chromates	90-97	Ortho phosphates	98-99	Virus	99.9
Cuivres (Brass)	97-98	Pesticides	98-99		
Cyanure (Cyanide)	90-95	Phosphates	97-98		

In order to visualize the fineness of filtration of the Reverse Osmosis membrane, we have seriously enlarged the diagram showing the size of bacteria or viruses with respect to the pores of the Reverse Osmosis membrane:

It is today the most reliable and efficient technology for the production of high quality drinking water for human use without resorting to chemical agents.

Filtration levels 1 and 2 are designed to eliminate particles suspended in the water ; level 3 (active carbons) partially identifies heavy metals, chlorine, pesticides and other chemical substances with a protective function for the Reverse Osmosis membrane.

The 6-level filtration system applies the Reverse Osmosis principle at level 4 prior to the device for the decontamination of bacteria UVc situated at level 5.

The mini-filter at level 6 acts as a return barrier to avoid bacterial retro-contamination through the tip of the pure water tube (blue) which could be manipulated by the users.

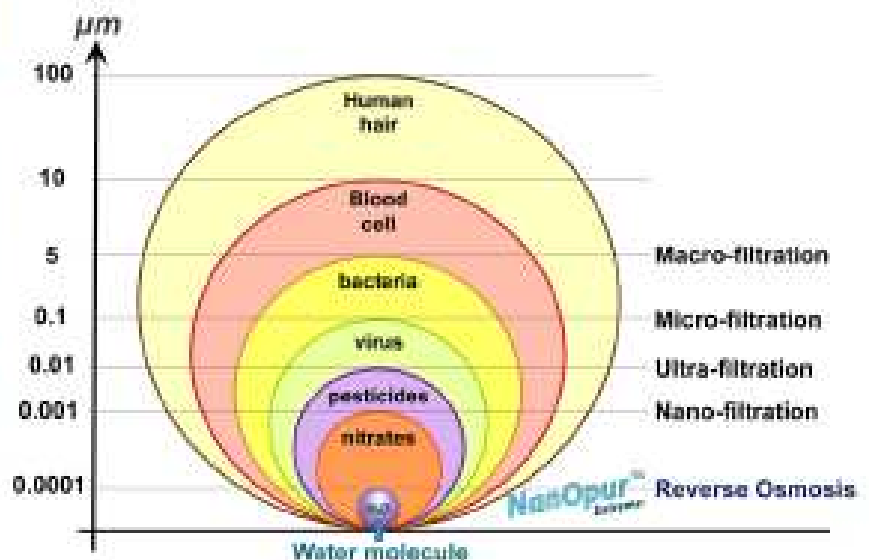
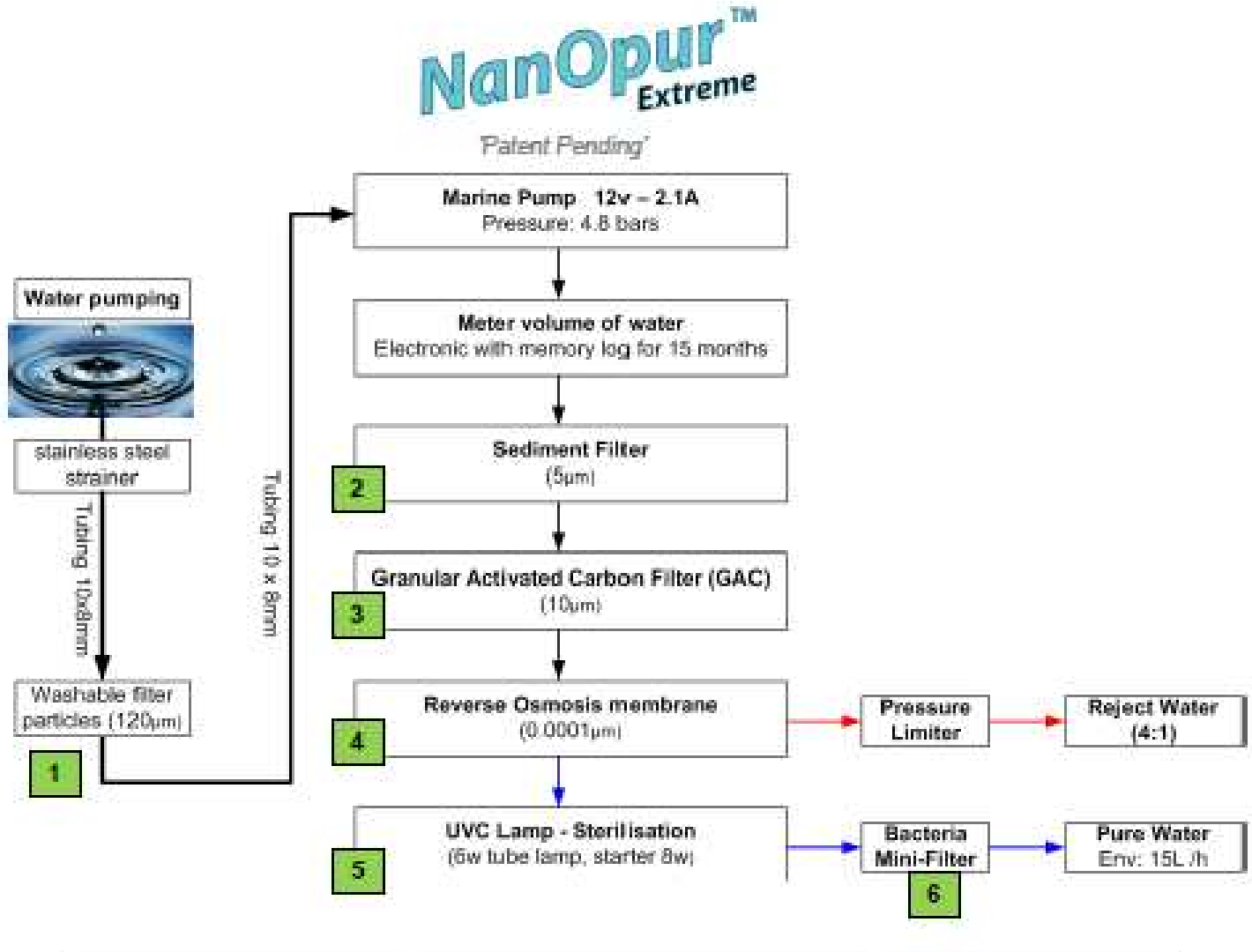


Diagram of filtration principle



Other risk factors

In addition to chlorine, lime, pesticides, nitrates, heavy metals, non assimilable minerals, there are constantly more chemical products coming from medical products and industrial molecules. According to the article "Environment and drinking water: a mass medication without our knowledge" by Sherrill Sellman published in Nexus n°38: the problem is very serious, to the extent that the polluting pharmaceutical and personal care products have been given a name : PPSPs. 90% of all medication absorbed is eliminated by the body intact and finds its way into water reserves. Industrial molecules are also found in water reserves.

There are currently 10500 chemical ingredients that find their way into the composition of so-called personal care products (moisturizers, cleansers, bubble baths, shampoos, deodorants, perfumes, sunscreens, etc.) that are known to perturb our endocrine, neurological, respiratory and immune systems".

Frequently asked questions

1. Given the extreme filtration level of the membrane by Reverse Osmosis, why is [NanOpur™ Extreme](#) equipped with a UVc device?
 - a. It is a matter of precaution. Certain bacteria or viruses have a deformable envelope which in rare particular instances could pass the Reverse Osmosis membrane in small quantities. The UVc device is meant to block these particular cases by a final bacterial disinfection (UVc flashes at 160 mjoules) providing water exempt of bacteria, viruses or protozoa.
 - b. On the other hand, by its definition and conception, the [NanOpur™ Extreme](#) device filters water in extreme conditions, i.e. water that is polluted, dirty and stagnant with a high level of bacterial contamination depending on the regions of the globe where the recycling process will be applied. Double anti-bacterial measures are a reassuring security factor for the users of the device.
2. What is the total volume of pumped water required to produce 1500 litres of pure water?
 - a. 7500 litres are needed to produce 1500 litres of pure water, the rejected surplus serves to clean the Reverse Osmosis membrane on a continuous basis. For every 5 litres pumped, the device is set to reject 4 for this purpose, thereby guaranteeing quality and efficiency of the Reverse Osmosis membrane.
3. When should the filters be replaced ?
 - a. Sediment filters (2) and carbon active filters (3) should be replaced approximately every 7500 litres of pumped water (depending on the quality of the pumped water). The washable pre-filter (1) should be cleaned regularly by rinsing. The life-span of the Reverse Osmosis membrane is between 3 to 5 years depending on usage and maintenance applied.
4. What is the amount of pure water produced by the device in 1 hour/1 day?
 - a. [NanOpur™ Extreme](#) produces between 15 and 18 litres per hour, i.e. approx. 360 to 430 litres/24 hours (the amount can vary according to the charge of the 12v battery used by the device).
5. Can sea water be recycled with the [NanOpur™ Extreme](#) device?
 - a. No, it is designed exclusively for fresh water. Another device is being developed for sea water and our partners will be informed subsequently on this matter.
 - b. Warning : if sea water is pumped into the system the Reverse Osmosis membrane will be deteriorated.
6. Is it reasonable to drink water with low mineralization?
 - a. Yes, it is in fact advisable. Water with high mineralization does not have the same hydrating and draining properties for our cells as slightly mineralized water. Recognized research and studies indicate that drinking highly mineralized water (+ 120 ppm) unnecessarily strains the kidneys in their function of eliminating unassimilable elements. As a matter of fact the non-organic minerals contained in drinking water (tap- or bottled) are difficult to assimilate whereas the organic minerals contained in fruit and vegetables are readily assimilated by our bodies.
 - b. Pure water produced by the [NanOpur™ Extreme](#) device_ contains a mineralisation of between 12 and 30 ppm with a pH often below 7 (~6.5 to 6.8), which makes it a bio-compatible water.

Legal information

The [NanOpur™ Extreme](#) (Patent Pending) device is produced and assembled in Switzerland.

- Materials used in the water circuit have all been certified and are in accordance with the standards of ACS (France) and NSF.
- The cases are produced by EPI of Geneva (Public Establishment for Integration – State of Geneva.)
- The [NanOpur™ Extreme](#) devices are individually tested under pressure for several hours before delivering.