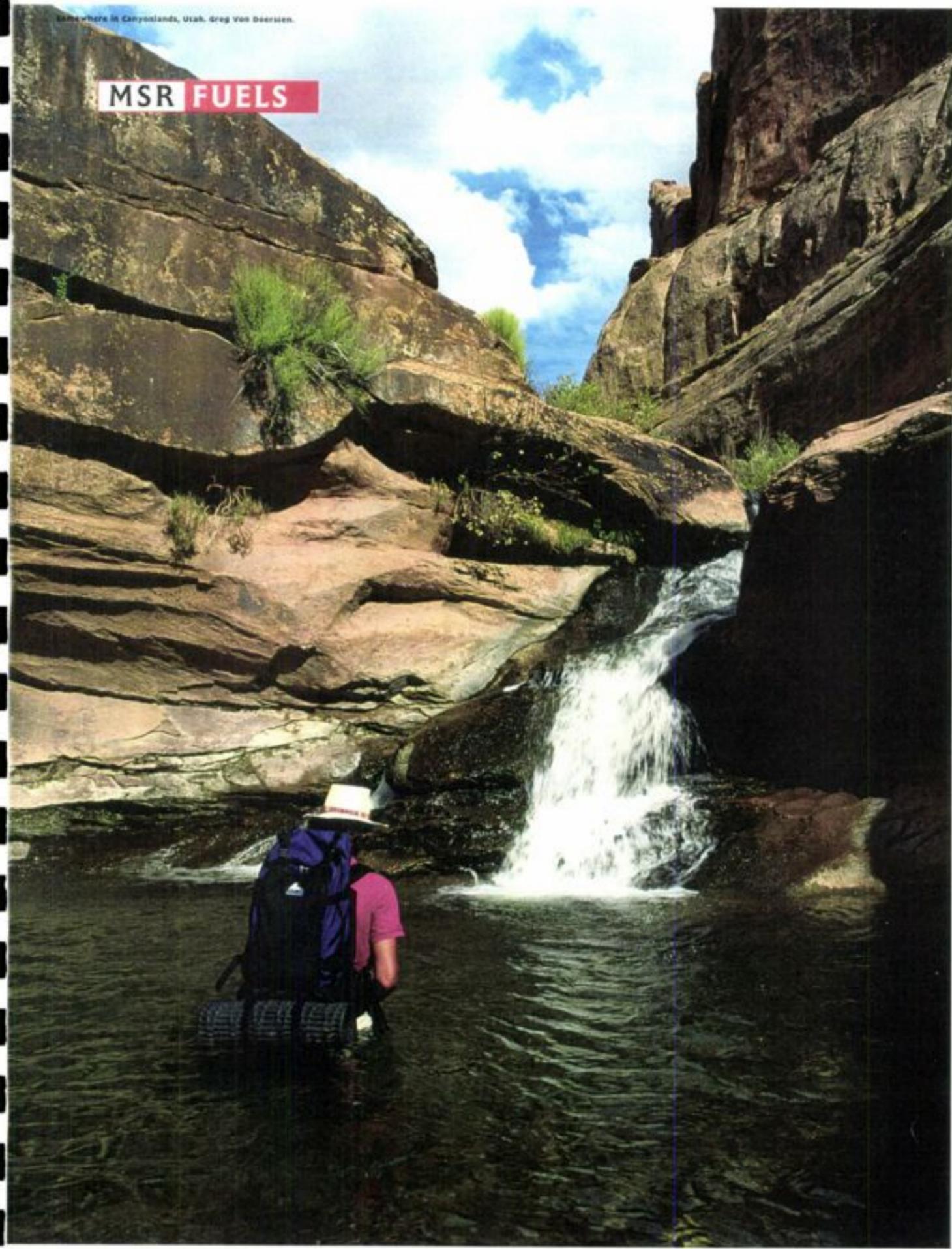


Somewhere in Canyonlands, Utah. Greg Van Beersien.

# MSR FUELS



### Threaded neck vs. threaded insert



MSR machines its threads right into the bottle's neck. Other fuel bottles use separate threaded inserts, which can twist loose and simply spin – so you can't pour fuel or remove the pump or cap.

## MSR Fuel Bottles

From base to neck, MSR fuel bottles are made from a single piece of impact-extruded aluminum. That means no seams or welds, which helps prevent leaks and cracks. And since the aluminum is thicker at the bottle's base and shoulders, it resists bulging when pressurized. In fact, in every detail, MSR fuel bottles are as thoughtfully engineered as the stoves they work with.

Available in 3 sizes: 11oz./325ml. 22oz./650ml. 33oz./975ml.



### MSR White Gas

Like MSR stoves and MSR fuel bottles, MSR White Gas is manufactured to the highest specifications. It's been filtered and tested to be clean, and it's free of additives that can clog your stove. And while some so-called "camping" white gas is actually used as dry cleaning fluid or printing solvent, MSR white gas is designed for one use only: to fuel stoves. (Plus, it comes from a single refinery, for consistent quality.) Our compact 1 liter container is shaped for packing, with an airtight seal for longer-term fuel storage. Weight: 1liter/1.06quarts

**Air-tight seal**  
To ensure a longer-lasting seal, we machine threads right into the neck, instead of using a separate threaded metal insert.

**Controlled pouring**  
Holes in shaft of bottle cap allow measured flow, prevent messy spills.

**Pump storage**  
MSR fuel pump can be stored inside a depressurized bottle for easy transporting.



The view from Kala Pazar toward Ama Dablam, Khumbu Himal, Nepal. Scott Fischer.

## Fuel Tips

### Fuel Bottle Pressure

MSR stoves burn best when the fuel bottle is pressurized to 15-25 psi, or about 20 pump strokes for a 22 oz. MSR fuel bottle filled to the fill line. Remember: As you use up fuel and the air space in the bottle grows larger, you'll have to pump a greater number of strokes to achieve the same pressure. For instance, when a 22 oz. bottle is half full, it may take 40-50 pump strokes to pressurize.

### Simmering

To get your MSR stove to simmer, use a very low fuel bottle pressure. 1 pump should do it.

### Storing Fuel

Exposure to air degrades fuel. To keep your fuel fresh and clean, store it in an airtight container like an MSR fuel bottle.

### Transporting Fuel

On most passenger airlines and other forms of public transportation, it is illegal to transport fuel without proper documentation. Before traveling, ask about regulations.

### Clogging

To avoid frequent clogging, use White Gas whenever possible. Here's why: Unlike lighter fuels such as White Gas, heavier fuels like kerosene and jet fuel evaporate more slowly. Unvaporized components in these fuels can get left behind in the form of black carbon deposits, clogging the jet and fuel line.

### High Altitudes

At high altitudes, reduced oxygen can cause a stove to burn "rich," which makes the flame burn farther from the burner, hindering vaporization. This can be partially offset by reducing fuel bottle pressure and opening up the Windscreen.

### Soot Control

To avoid messy stove soot, preheat your stove with priming paste or alcohol instead of white gas.

### How much fuel should you bring?

Per person, per day:  
When melting snow—  
8 ounces  
When heating water—  
4 ounces  
When trekking in the Antarctic—  
15 ounces

## MSR Fuel Bottle Burn Times

Fuel Bottle Size	Stove	Burn Time* in minutes with pressure decreasing from 30-10 psi	
		White Gas	Kerosene
11 ounce/325 ml.	XGK II Shaker Jet	50-95	45-85
	WhisperLite	55-100	—
	WhisperLite Internationale 600	60-100	70-125
22 ounce/650 ml.	XGK II Shaker Jet	100-180	90-165
	WhisperLite	100-195	—
	WhisperLite Internationale 600	115-195	140-240
33 ounce/975 ml.	XGK II Shaker Jet	150-265	130-240
	WhisperLite	150-285	—
	WhisperLite Internationale 600	165-280	200-355

\*Use these numbers as a rough estimate. Tests were performed using 11, 22, and 33 ounce fuel bottles, at pressures from 30-10 psi. The burn times on page 5 were performed at a controlled fuel bottle pressure of 20 psi. This difference in fuel bottle pressure (psi) accounts for the wider range in the burn times above.

### Important warning about auto gas.

Although the XGK II and the WhisperLite Internationale 600 can burn automobile gasoline, it should be used only as a last resort. Auto gas is very volatile and if not handled with extreme care it can explode. Use white gas whenever possible.

## MSR COOKWARE

Pierre Bouchard of the fabulous "Vetro Brothers," carbobloading near Sym in the Ural Mountains of Siberia, Russia. Story, p. 12. Scott Bellmore.



## The Fires of Freedom.

At dawn on the morning of South Africa's first democratic elections, Thomas Wimber led the first steps of another journey: a 500 kilometer expedition along the High Berg, the mountainous hinterland between South Africa and Lesotho. Known in Zulu as Kwathlamba, or "Barrier of Spears," it's what Wimber calls "a uniquely stark and stunning mountain range." (But he warns that the high grazing lands of Basotho and Zulu herders are being threatened by development.) As the expedition travelled along ridges, over peaks, and past herdboys huts, its MSR stoves "worked beautifully and fired up hot," despite temperatures as low as -15° C.



Firing up in the High Berg of South Africa. Thomas Wimber.

## Alpine™ Cookware

Like all MSR pots, our Alpine cookware is made of polished stainless steel. That makes it durable and lightweight. It also makes meals taste better, because unlike aluminum cookware, stainless steel won't give your food a metallic aftertaste. The Alpine's 1.5 and 2 liter pots have rounded corners that allow heat to flow up their sides, boosting efficiency 5%. Plus they nest neatly together, with enough room left over to store most MSR stoves. Pot lifter and stuff sack included.

Weight: 26oz./733g.



**Rounded corners** allow heat to travel up sides of pot and heat contents faster. They also allow easier cleaning.

**Curved Lip** provides greater visibility and reduces spillage, assuring a consistent fit.



**Lightweight Pot Lifter** securely grips lip of pot, for easy cooking.

**Multi-use Lid** saves weight because it fits both pots and doubles as a fry pan.



## Cookware Tip

You can make your MSR pots even more efficient by allowing them to blacken from use. That's because a blackened surface actually absorbs heat better than a shiny one.

## XPD™ Cookset

With the XPD Cookset, our engineers created the most heat-efficient, weight-saving cookware system available. They developed a unique Heat Exchanger that wraps around either pot and increases efficiency up to 25% by capturing heat normally lost to the outside and redirecting it up the sides. That way you can boil water faster, and therefore use less fuel - and ultimately carry less weight. (The extra weight of the Heat Exchanger will be justified on long trips, or any trip where snow is melted for water.) The XPD's lid fits both pots and doubles as a fry pan, and its pots nest together with enough room inside to store the Heat Exchanger and most MSR stoves. Includes 1.5 and 2 liter stainless steel pots. Weight: 32oz./903g.



## Cascade Cookware

The Cascade offers all the features of MSR's other cooksets and more. Its pots are made of the same lightweight, durable stainless steel; they have individual lids, plus rounded corners for quick heating and simple cleaning. But the Cascade set includes 1, 2 and 3 liter pots, for more size options.

The individual lids double as fry pans, and stack together with the pots into a single unit. Set includes a lightweight pot lifter that works with each pot and lid.

Weight: 50oz./1398g for set.



All MSR cooksets come with a durable, custom-fitted, nylon stuff sack. All cooksets, except StowAway pots, also come with a pot lifter.

## StowAway Pots

StowAway pots convert instantly from dry food carriers to cooking pots. Each one has an ingenious hinged handle that makes camp cooking convenient. The handle also doubles as a locking device, allowing you to secure the lid. Each pot has a fitted lid with a top handle. Like all MSR cookware, StowAway pots are made of lightweight, durable stainless steel.

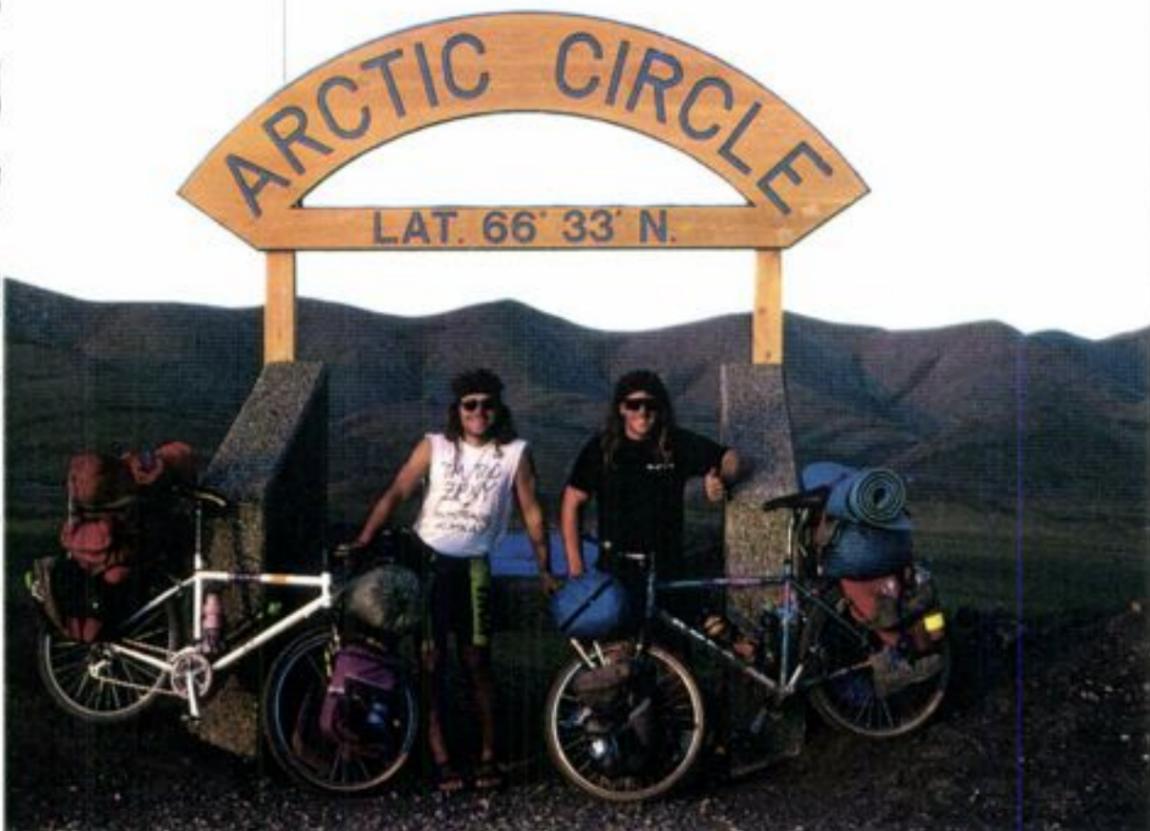
**Size:** 475ml. 775ml. 1100ml. 1600ml.  
**Weight:** 9.5oz/270g. 13oz/365g. 15.5oz/440g. 19.5oz/550g.



### Meals on Wheels.

In 1990, Steve Bellemare and Pierre Bouchard pedaled out of Quebec and into the record books, winding their way through North America, Iceland, Scandinavia, France, the Mediterranean and western Russia. By the time they hit Moscow, they had pedaled a greater distance than the earth's circumference – and that was just the halfway point of their round-the-world tour. To survive four years and 50,000 kilometers on the road, they had to use their wits, their leg muscles, and dependable, lightweight equipment, including an MSR stove and cookware.

Greetings from the "Valero Brothers" in the Northwest Territories of Canada. Steve Bellemare.



Nomadic Kazakh children in the Altai Mountains of Western Mongolia. Jacques Dick.

## WaterWorks® Ceramic Filter

We designed the WaterWorks Ceramic for the serious outdoor enthusiast. No other filter removes more kinds of organisms or pumps longer without clogging – important abilities in any circumstance, but especially on long trips, in large groups, or around silty water.

Instead of added chemicals, it uses 3 separate filters. Together, they remove Giardia and other protozoa, bacteria, and many pesticides and chemicals. What's more, its ceramic element is easy to clean in the field. In fact, the WaterWorks is completely field maintainable. All of which makes it not only the most effective portable treatment device available, but also one of the most cost-effective. Includes Stuff Sack.

**Weight:** 17.3oz/490g.



Alan Kearney in front of Ama Dablam, Khumbu Himal, Nepal. Bill Cross.

### WaterWorks advantages over other filters.

- It will not let bacteria through, regardless of pump rate or degree of clogging. Other filters must be pumped much more slowly to avoid letting organisms bypass the main element.
- If overpumped, its Relief Valve will vent untreated water out the inlet hose. Some filters leak water out the top, increasing chances of contamination.
- Unlike some filters, its effectiveness claims are based on filtering water once, not twice.
- Compared to the main elements of some other filters, the WaterWorks' ceramic cartridge can filter five times as much water before clogging.

**Tool-free Disassembly**  
for easy field maintenance.

**Ceramic/carbon Filter Element**  
provides more protection and longer life for membrane; allows multiple cleanings; reduces chemicals and taste and odor compounds.

**Opposing-Action Lever and Floating Piston**  
make pumping easier; patented design provides better leverage.

**Rigid Polyurethane Resin**  
provides 3 major advantages over polycarbonate: higher tensile strength; better chemical and abrasion resistance; and superior toughness at low temperatures.

**100% tested Membrane Cartridge**  
removes all bacteria, regardless of concentration; no other treatment device gives you this level of protection.

**Patented Inlet Float**  
keeps intake off screen bottom, extends life of filter cartridge.

**Adapter Base**  
conveniently fits an MSR Dromedary bag or Nalgene water bottle (no accessory kit needed); prevents spills; reduces chance of cross-contamination.

**Shock-absorbing Silicone Bumpers**  
protect ceramic filter cartridge from damage if WaterWorks is dropped.

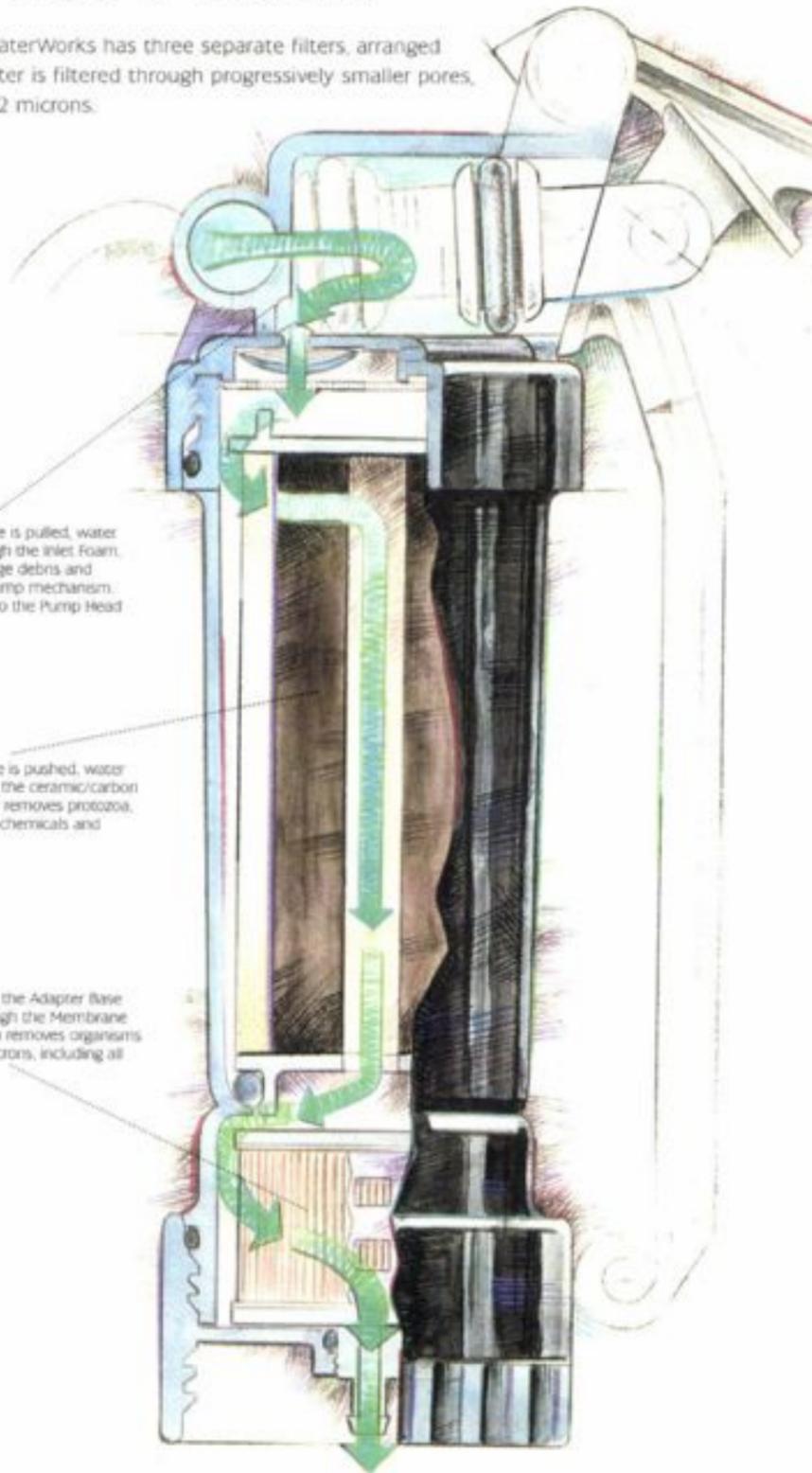
## How it works.

The WaterWorks has three separate filters, arranged so that water is filtered through progressively smaller pores, down to 0.2 microns.

1. As the handle is pulled, water is drawn through the inlet foam, which stops large debris and protects the pump mechanism. Water flows into the Pump Head Cylinder.

2. As the handle is pushed, water passes through the ceramic/carbon element, which removes protozoa, bacteria, many chemicals and pesticides.

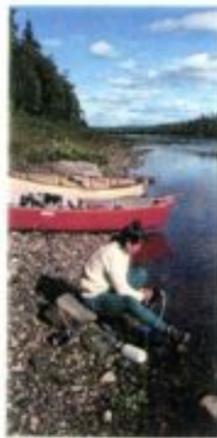
3. Water enters the Adapter base and flows through the Membrane Cartridge, which removes organisms down to 0.2 microns, including all bacteria.



### Ceramic Cartridge

At the heart of the WaterWorks Ceramic filter is a cartridge with a carbon core surrounded by a ceramic cylinder. This element can be removed and cleaned many times with a scrubbing pad, for full "recovery." When it's no longer recoverable, it can be replaced.

The WaterWorks has a unique modular design that allows its pump to work independently of its filter cartridge. That means you can easily retrofit older WaterWorks filters with the newer Ceramic cartridge.



Annie Gerchel on the Mississipi River, Ontario.  
Peter Cole.



A dromedary modeling the MSR Dromedary Bag, Algeria.  
Sorrel Wilby.

## Dromedary™ Beverage Bags

Expandable, collapsible Dromedary Bags let you carry 2, 4, 6, or 10 bottles' worth of water, but without the bulk of bottles. That means you can filter all the water you need, all at once - no running back and forth to the stream while you're cooking and cleaning. What's more, Dromedary Bags have threaded openings that attach directly to the bottom of an MSR WaterWorks Ceramic Filter. And their ingenious 3-in-1 caps let you drink, pour or fill with equal ease.

Made with durable, laminated Cordura® nylon, Dromedary Bags can be dropped and even accidentally frozen without rupturing or tearing. They also double as pillows when inflated, heating pads when filled with hot water, or ice packs when filled with ice or cold water. When filled and warmed in the sun, they can even serve as solar showers.

**Sizes:** Deluxe (includes webbing & grommets): 2, 4, 6, or 10 liters.

Reg. 2 or 4 liters.

**Color:** Black. (2 and 4 liter sizes also available in blue.)



**6 and 10 liter models**  
made of 1000 denier Cordura® nylon,  
bonded to polyurethane inner lining.

**2 and 4 liter models**  
made of 500 denier Cordura® nylon,  
bonded to polyurethane inner lining.

**Brass grommets laced with webbing** for convenient hanging and carrying.

**Squirt top** for drinking.

**Spout** for easy pouring.

**Wide mouth** for quick filling with water and even ice cubes.

**Food-grade polyurethane inner layer** is tougher than vinyl, with superior low-temperature flexibility.

