P&G™ Purifier of Water

P&G™ Purifier of Water *formerly PUR Purifier of Water*

P&G is working with many partners in an effort to reduce the sickness and death that result from drinking contaminated water

The Need for Clean Drinking Water

- Safe drinking water is a problem for more than 1 billion people around the world
- Waterborne diseases remain a leading cause of illness and death in the developing world
- More than 2,000 children die every day due to diarrheal diseases caused by unsafe water–more deaths than from HIV/AIDS and malaria combined

What is *P&G* Purifier of Water?

- *P&G* Purifier of Water is a powdered water purification technology packaged in a 4g sachet
- It works like a dirt magnet, pulling dirt and contaminants out of unclean water
- *P&G* packets use many of the same ingredients used in municipal water treatment systems
- It provides a visible signal that the water is getting cleaner, even in highly turbid water, and this increases user confidence
- It also provides residual chlorination so that the water will remain usable for about a day
- The portability of the light-weight packets makes them a viable option for distribution to victims of emergencies and natural disasters or to hard-to-reach rural areas
- Only simple, readily available household implements—bucket, stir stick, filter cloth—are needed to use the *P&G* packets

Water Purification Process

- Add the contents of 1 packet to 10 liters (2.5 gallons) of water and stir to begin the process of precipitation and coagulation
- Stir for 5 minutes until floc forms and the water is clear
- Let rest for 5 minutes
- Filter water through a clean, 100% cotton cloth and dispose of separated floc in latrine
- Wait 20 minutes before drinking to allow for complete disinfection
- Store in a suitable container to prevent recontamination

Source Water

Floc Formation after P&G Packet Addition

Floc Formation after Complete Stirring

Decanting the Water through a Cloth Filter

Clean Water Ready for Storage and Use

World Health Organization (WHO)/UNICEF *International Network to Promote Household Water Treatment and Safe Storage* *(www.who.int/household_water)*

- There is conclusive evidence that simple, acceptable, low-cost interventions at the household and community level are capable of dramatically improving the microbial quality of household stored water and reducing the attendant risks of diarrheal disease and death
- Combined flocculation/disinfection systems have been classified by WHO as a “protective” technology, are effective at reducing pathogens of all classes, have demonstrated health benefits, leave residual protection, and remove muddy sediment

Results of *P&G* Packet Testing

Laboratory and Field Testing of *P&G* Packets

Effective in Removing Bacteria

Bacteria	Initial (org/liter)	Post-Treatment
E. coli	2.0×10^8	ND
10 common fecal bacteria	9.2×10^9	ND
Salmonella typhi	1.6×10^8	ND
Vibrio cholerae	1.2×10^8	ND
Shigella sonnei	2.2×10^8	ND
Klebsiella terrigena	2.8×10^8	ND
Campylobacter jejuni	2.0×10^8	ND

ND = None Detected

Effective in Removing Viruses

Virus	Initial Viral Count/ml (log 10)	Mean Log Reduction
Poliovirus	7.1	>5.0
Rotavirus	7.9	>5.0

Effective in Removing Cysts

Cyst	Mean Initial (org/liter)	Mean Log Reduction
Cryptosporidium parvum	1.76×10^6	4.0
Giardia lamblia	1.84×10^6	3.6

Reduction of Heavy Metals

Heavy Metal	Initial (ppb)	Post-Treatment (ppb)
Arsenic	229	1.2*
Chromium (III)	1300	3.1*
Lead	270	<10*

* Below WHO Guidelines

Removes Organics and Some Pesticides

Test Material	Initial	Post-Treatment
Humic acid (ppm)	24-30	<1
DDT (ppb)	6	0.34

WHO Guidelines for DDT = 2 ppb

Effective* in a Wide Variety of Field Samples

Country	Initial NTU	Treated NTU
Guatemala	0 – 501	0.0 – 2.6
Kenya	0.7 – 1850	0.4 – 3.2
Morocco	0 – 244	0.0 – 1.1
Philippines	0 – 550	0.0 – 1.2
Bangladesh	10 – 35	0.0 – 1.1
South Africa	<0.2 – 54	0.2 – 0.4

* Effective microbiologically as well as improving clarity

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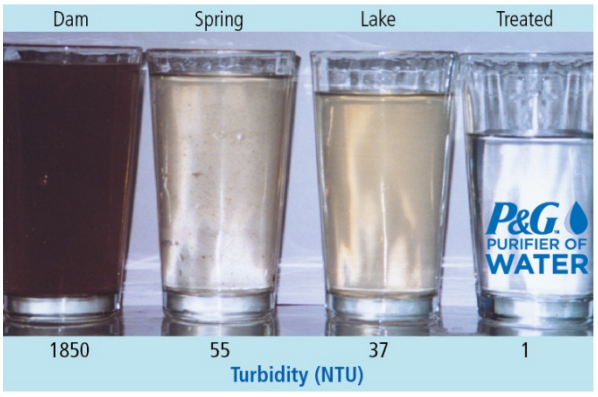
Health Intervention Trials

The U.S. Centers for Disease Control and Prevention and Johns Hopkins University have conducted 5 clinical trials of the *P&G* packets and proven that it significantly reduces diarrheal illness in children and the total population.

Location/ Setting	Study Design	Diarrhea Reduction
Rural Guatemala	2,982 people 52 weeks	24-29% reduction
Rural Guatemala	3,401 people 13 weeks	40-72% reduction
Rural Kenya -- turbid water	6,615 people 20 weeks	17-42% reduction
Pakistan -- urban setting	12,090 people 39 weeks	59-64% reduction
Liberia -- refugee camp	2,191 people 12 weeks	87-95% reduction

Kenyan Drinking Water Samples



Document intended for use outside of the United States

Contact:
Greg Allgood, Ph.D.
Director, P&G Children's Safe Drinking Water Program
allgood.gs@pg.com

www.pghsi.com
www.csdw.org
www.pg.com

The Procter & Gamble Company
2 P&G Plaza
Cincinnati, Ohio 45202 USA

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