



The **SAFEST WATER** In The World

MIOX Water Purification Systems for Developing Countries

MIOX Corporation provides the most advanced water purification systems available. Its patented technology can purify water without dangerous chemicals and enables significant cost and energy savings versus traditional treatment methods. MIOX systems meet or exceed U.S. EPA (Environmental Protection Agency) and NSF International standards for potable water applications. The advanced technology is proven effective in the most complex municipal water systems in the world, as well as the most rugged, rural and remote settings. MIOX scales from personal sized systems to large size systems that can treat hundreds of millions of liters of water per day.

MIOX technology uses a process referred to as on-site generation (OSG) – the use of salt, water and electricity to produce a powerful chlorine-based disinfectant, “mixed oxidants”, on demand. Consumers prefer drinking water treated with mixed oxidants because it is virtually odorless and tasteless at recommended doses and does not cause the throat irritation that is often experienced when drinking bleached water. Additionally, mixed oxidants can often be dosed at lower chlorine levels than bleach while still providing superior disinfection results.

MIOX is broadening access to affordable, clean and healthy water through its environmentally sound technology. Mixed oxidants eliminate virtually all harmful viruses and bacteria in water. Independent studies have shown that mixed oxidants inactivate *Cryptosporidium* by 99.9%, while conventional disinfectants have minimal impact on this dangerous parasite.ⁱ

Chlorine has been the gold standard for water purification for the last century, and its use has dramatically reduced water-related illness, as well as the prospect for pandemic disease.ⁱⁱ However, chlorine as bleach is highly susceptible to degradation, with the impact worsened by temperature and lack of pH control. A rapidly degrading bleach solution makes proper dosing of water difficult, leaving the populace exposed to contaminated water. In contrast, generation of fresh disinfectant on site minimizes the risk of degradation, offering a more consistent dosing methodology and access to safer drinking water.

With salt as the only bulk-transported and stored material needed, MIOX on-site generation also reduces transportation issues. For example, transport of salt as a raw material compared to transport of 10% bleach cuts delivery weight and frequency by 75% or more while providing substantial cost savings for the same amount of disinfectant. These advantages make MIOX a more sustainable and environmentally friendly method. Considering the minimal safety training requirements, a MIOX installation could further benefit a community by creating employment opportunities for low-skilled, local workers.

MIOX is safer, cleaner, more environmentally friendly and more cost effective than other water treatment methods. In many parts of the world, water is purified thermally by boiling away contaminants. Given the same energy required to boil one liter of water, a

MIOX system can treat 40,000 or more liters. Moreover, water purified with MIOX will be resistant to recontamination, while boiled water can easily be reinfected with potentially dangerous pathogens. The existence of a chlorine residual in MIOX-treated water allows local consumers to continue obtaining their water from the same sources and using their traditional storage containers without sacrificing taste or healthy quality.

MIOX is the only company that has successfully scaled and implemented on-site generation products in sizes ranging from community applications to individual use. Today, there are approximately 1,000 large-scale installations in the US and another 500 in thirty countries across the world. These systems are used for community and industrial water treatment. The MIOX technology also has been scaled for individual use with the introduction of the MSR MIOX Purifier in 2003. Over 70,000 handheld purification units have been sold worldwide, with approximately 27,000 in use by the US Military, some under extreme conditions in Iraq and Afghanistan.

MIOX products are satisfying the needs of volunteer and relief workers who live in rugged or cramped conditions and require reliable access to safe drinking water. Government agencies and NGOs (Non Government Organizations) have also effectively used systems to provide point of use water purification in disaster relief efforts including Hurricane Katrina, the tsunami of 2004 in Sri Lanka and Thailand, and the recent floods in the Mexican state of Tabasco. Additionally, MIOX systems have proven effective in remote settings including an orphanage in Roatan, Honduras, as well as villages in South Africa and Rwanda, Africa.

MIOX continues to advance its technology and products in a quest to improve clean water access. While existing MIOX systems already have low power demands and are adaptable for use with solar power, portable generators, car batteries or rechargeable batteries, product development and redesign will further integrate alternative energy sources to better fit developing nations' needs and price points. MIOX is actively seeking partners to facilitate distribution, local manufacturing, microfinance and other activities for market integration. Ideal partners will bring expertise working with nations that have minimal access to safe water and hygiene, particularly African, Arab, Inter-American, Asian and Pacific countries.

ⁱ BioVir Laboratories, "Test Summary of the MSR MIOX Purifier Using the US EPA Guide Standard and Protocol for Testing Microbiological Water Purifiers," (2002)

ⁱⁱ Hend Galal-Gorchev, "Chlorine in Water Disinfection," *Pure & Applied Chemistry* 68 (1996): 1731.