

# BACKGROUND



## Verde Technologies, Inc.

- Founded in 2011, Minneapolis-based Verde Technologies, Inc. is a privately-owned company committed to providing safe, cost-effective and environmentally responsible solutions for disposal of unwanted prescription drugs to discourage misuse and abuse of unwanted medications, prevent accidental poisonings and reduce pharmaceutical contamination of water.
- The idea for Verde Technologies originated upon the discovery that in some cases, several lethal doses remain in transdermal patches after use, which can result in accidental deaths. In response, Verde CEO Andrew Korey formed the company to develop products that combat prescription drug abuse and misuse in a way that is safe for the environment. Since filing its first patent application in 2011, Verde has extended the technology to include all forms of medication – pills, liquids and transdermal patches.
- Disposal of unwanted pharmaceuticals has become a significant problem, manifested by environmental contamination of groundwater from flushing and throwing away medications, as well as the risk of diversion and accidental exposure to children or pets. Take-back programs have been successful in accumulating unwanted medications; however, these programs are expensive, take place infrequently, are inconvenient and have been recently shown to only succeed in addressing a minor percentage of total unused drug accumulation.
- In 2014, Verde was awarded a Phase 2 Small Business Innovation Research contract by the National Institute on Drug Abuse (a branch of the National Institutes of Health) for continued development of an inexpensive at-home and institutional deactivation system for unwanted psychoactive drugs. As part of the contract, Verde developed a single prescription size format for the deactivation and disposal of unwanted drugs, as well as conducted user testing, toxicity and risk assessment evaluations.
- In August 2014, Verde Technologies won the Social Entrepreneur Division in the 2014 Minnesota Cup, a statewide entrepreneurial competition that supports and accelerates the development of breakthrough business ideas from across the state.

## Deterra™ Drug Deactivation System

- Verde's flagship product, the Deterra Drug Deactivation System, renders unwanted, unneeded narcotics, antibiotics, transdermal patches and other prescription drugs ineffective for misuse and safe for disposal and the environment. Deterra was originally introduced as Medsaway.
- Powered by patented MAT<sub>12</sub>™ Molecular Adsorption Technology, the Deterra System neutralizes the active chemicals in prescription drugs using proprietary activated carbon. This technology is highly effective in adsorbing and firmly binding pharmaceuticals, rendering them inactive and ineffective for misuse or accidental exposure to children or pets.
- The Deterra System features a pouch containing MAT<sub>12</sub>, a proprietary activated carbon that bonds to pharmaceutical compounds when water is added, making drugs quickly ineffective and safe for disposal in any setting – home, clinic or hospital.

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- The Deterra System works quickly and is easy to use. Place unused medications in the pouch, fill halfway with warm tap water, wait 30 seconds, seal pouch, gently shake and dispose with normal trash. Once a drug is adsorbed using MAT<sub>12</sub>, it becomes insoluble in water and remains strongly bound to the carbon, even if subsequently exposed to the environment. It can then be safely disposed of in landfills where the insoluble products will not leach into groundwater.
- The Deterra System has a 98.1 percent success rate in deactivating prescription drugs, according to a research study supported by the National Institute on Drug Abuse (NIDA). It is the only product of its kind that is lab-tested and scientifically proven to neutralize prescription drugs, rendering them irretrievable.
- When using the Deterra System, deactivation of medication starts immediately, but takes time to complete. The time in which the whole deactivation process will take place depends on the amount of and type of drug; however, most drugs with periodic agitation will be deactivated within 48 hours.
- Designed to be a cost-effective and easy-to-use drug abuse deterrent, Deterra is also environmentally friendly as it renders chemical compounds safe for landfills, prevents harmful incineration and reduces watershed contamination.
- Deterra also promotes social responsibility as it closes the product lifecycle for pharmaceutical companies and health care providers, reduces misuse-related medical emergencies and demonstrates commitment to personal and public health.
- A new Deterra partnership program is available for companies and advocacy groups, such as pharmaceutical manufacturers, payers and health insurance companies, pharmacies, hospitals and surgery centers, community organizations and police departments. The Deterra partnership program provides a cost-effective, environmentally and socially responsible way to quell the urgent issue through distribution of the Deterra System pouches at physician offices, pharmacies, hospitals and community locations to safely dispose of unused and unwanted medications.
- The Deterra System is available in several sizes and formats, providing options for individual and institutional use. Deterra-SP is a single pouch design with a recommended capacity of 15 pills, 2 ounces of liquid or two transdermal patches per pouch. Deterra-MP deactivates up to 45 pills, 6 ounces of liquid or six patches; Deterra-LP has a capacity of 90 pills, 12 ounces of liquid or 12 patches; and Deterra Pro contains three Deterra-LP pouches. Deterra XL is available for hospitals and clinics, providing a larger one-gallon size with a total capacity of 450 pills, 60 ounces of liquid or 60 patches. Deterra Contra-Patch contains 25 pouches, each with a capacity for one patch. The Deterra System is available to partners, with the smallest size priced significantly under \$1 each.
- Deterra is made in the U.S., with final packaging completed in Minnesota.