DisposeRx®
Solving the problem of drug disposal

Scientific Testing Summary

DisposeRx's patent-pending formulation rapidly becomes a biodegradable gel when activated upon the addition of water in the presence of medications whether in pill, capsule, tablet or liquid form. The formation of the gel is due to the cross-linking polymers that make up the DisposeRx powder when mixed with water. DisposeRx is made of components that are either generally recognized by the FDA as safe (GRAS) or non-toxic and are often used in preparing various foods.

As part of its ongoing corporate due diligence efforts, DisposeRx has conducted several studies with independent laboratories. These included an evaluation of:

- The amount of time required for tablets to physically breakdown when exposed to activated DisposeRx (pill degradation study)
- The recovery of frequently abused drugs once treated with DisposeRx (e.g. opioids such as *oxycodone*, benzodiazepines such as *alprazolam*, muscle relaxants such as *carisoprodol,* and various formulations of *Oxycontin™*)
- Whether "at-home" pharmacologists could extract oxycontin from DisposeRx using hot water, cold water, acids (including lemon juice and vinegar), base (sodium bicarbonate), vodka, etc.
- Whether DisposeRx complies with state and federal regulations on disposal, we conducted several safety studies, including
    - the Washington State Hazardous Waste Regulation Bioassay
    - the California Fathead Minnow Test
- To evaluate safety for DisposeRx landfill disposal, the Toxicity Characteristic Leaching Procedure (TCLP) testing for Volatile Organic Compounds and Resource Conservation and Recovery Act (RCRA) metals were evaluated.
- Head to head comparison of DisposeRx with competing in-home products

Because of the biological origin of the ingredients in DisposeRx, these components serve as a medium for the growth of molds and bacteria found in the air and in landfills. Within weeks to months after mixing DisposeRx with drugs, these molds or bacteria promote the biodegradation of the gel and the drug contents, resulting in the release of harmless gases such as carbon dioxide as the components dry up.

The tests summarized below confirm that the DisposeRx-treated medications were rendered unavailable and unusable for all practical purposes.

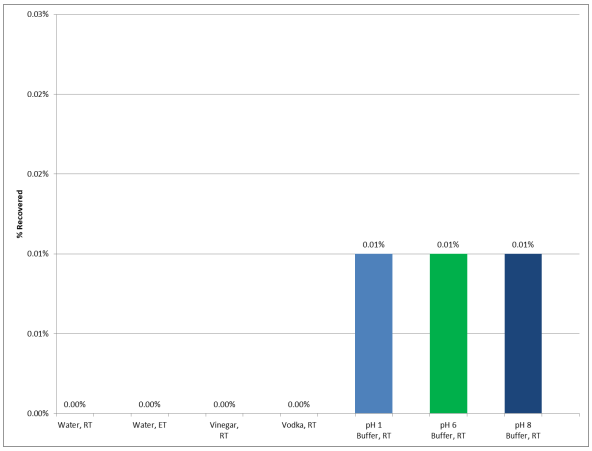
Pill Degradation Testing

We engaged a third party laboratory, NMS Labs, Willow Grove, PA, to conduct a study on the DisposeRx and tablet combination to see how the matrix performs over time as it facilitates the degradation of medications in tablets.

The DisposeRx gel matrix begins degrading the tablets, capsules or pills immediately, and most formulations are degraded within as early as 30 minutes. The viscosity of the mixture and the degree of difficulty of trying to remove any medicine residues make this an effective deterrent in the unlikely event that drug abusers attempt to manipulate tablets that have been discarded using DisposeRx.

Extractability Testing

NMS Labs activated the DisposeRx gel in the presence of 200mg oxycodone to see if any oxycodone could be extracted. This amount of oxycodone is lethal if taken by an opiate-naïve person. It was concluded that using common household solvents, the quantitative amount of oxycodone extracted was **less than 0.01%** (Please see graph below). The laboratory concluded that "the DisposeRx gel disposal matrix is a valuable product that provides a superior means of disposing pharmaceuticals."



On average, **0.01% or less Oxycodone** was recovered relative to the pre-filtration mass after extraction attempts with hot or cold water, vinegar, vodka or various buffer solutions from acid to base.

Washington State Hazardous Waste Regulation and California Fathead Minnow Hazardous Screen Assay

Our product has undergone the Washington State Hazardous Waste Regulation Bioassay (Test America, Inc) and the Fathead Minnow Hazardous Waste Screen Bioassays. The Washington State testing demonstrated that DisposeRx meets the definition of "not dangerous waste". The Fathead Minnow testing (Aquatic Testing Laboratories, Inc) by adding DisposeRx to an aquarium determines whether or not a sample should be classified as hazardous waste under the state of California criteria. DisposeRx passed these tests and is classified as "non-hazardous waste".

TCLP Testing

DisposeRx was also subjected to TCLP (Toxicity Characteristic Leaching Procedure) testing for Volatile Organic Compounds and Resource Conservation and Recovery Act (RCRA) metals. The independent laboratory, Elemental Analysis Inc., concluded that no hazardous levels of leachable volatile organic

compounds were detected in the analysis. In addition, they concluded that the product contains no detectable levels of leachable metals and that the product is certified as "non-hazardous waste".

Summary

These independently conducted studies confirm our own investigations indicating that medications captured in the DisposeRx gel are both chemically and physically sequestered and are rendered unavailable and unusable for all practical purposes. Accordingly, in the unlikely event that someone would attempt to remove the medications from the vial for abuse once rendered unavailable and unusable with DisposeRx, they would be unsuccessful. Furthermore, independent studies demonstrated the environmental safety of DisposeRx treated medications. DisposeRx is the gold standard of drug disposal.

There are several alternatives for drug disposal, *and each plays a role in stopping this opioid epidemic.* The Federal agencies, including the Food and Drug Administration, Drug Enforcement Administration, Environmental Protection Agency and Centers for Disease Control under which drug disposal may fall have differing recommendations as to the best way of cleaning out medicine cabinets and destroying the leftover drugs. Beyond flushing, there are recommendations to add leftover medications to kitty litter, coffee grounds or sawdust and then place in the household garbage. According to familydoctor.org guidance is made to encourage the flushing of fentanyl patches.

We can only emphasize that using DisposeRx as a means of safely getting rid of unused medication is clearly a much better drug disposal solution than those recommended above. Twice yearly DEA take-back days largely collect over the counter drugs like cough syrup and containers and not pills. Other alternatives include mail-in pouches (often diverted and expensive), kiosks in pharmacies and law enforcement facilities (inconvenient, expensive and often diverted), and incineration (some states don't allow, and it is polluting). Our disposal solution is convenient, renders the drugs unavailable and unusable for all practical purposes, is ecologically safe, affordable and inexpensive.

If further information or details of studies are required, please contact Ann Hamlin, Director of Training and Scientific Support, DisposeRx (919) 414-7001 info@disposerx.com.