



# UNDERSTANDING THE BENEFITS OF CHEMICAL DIGESTION

## THE POWER OF ONSITE DESTRUCTION

SafeMedWaste is a patented onsite chemical digestion technology scientifically proven to achieve complete molecular destruction of a wide range of controlled substances, without incineration. The safe, easy-to-use product immediately renders drug wastage non-retrievable and provides complete, onsite molecular destruction in 2 to 72 hours.

CHEMICAL DIGESTION	VS	CHARCOAL ADSORPTION	VS	INCINERATION
<ul style="list-style-type: none"> <li>• Immediate Non-Retrievability</li> <li>• Full destruction of liquid waste &lt;24 hrs</li> <li>• Full destruction of solid waste &lt;72 hrs</li> <li>• Destroys without incineration</li> <li>• Drugs cannot be resynthesized</li> <li>• No longer effective in humans/animals</li> <li>• Byproduct is non-hazardous waste</li> <li>• Simple, cost-effective solution</li> </ul>		<ul style="list-style-type: none"> <li>• May not adsorb/bond all drug molecules</li> <li>• Adsorption does not destroy drug</li> <li>• Drugs can be desorbed from the charcoal</li> <li>• Drug molecules are still subject to diversion</li> <li>• Drug waste can leach in landfill</li> <li>• Requires incineration to achieve destruction</li> <li>• Landfill disposal is banned in some states</li> </ul>		<ul style="list-style-type: none"> <li>• Active drugs remain onsite until pickup</li> <li>• Pickup can take 7 to 30+ days</li> <li>• Compliant onsite storage/handling required</li> <li>• Higher risk of diversion with untreated drug waste</li> <li>• Requires compliant transport &amp; incineration</li> <li>• Complicated, costly handling and disposal process</li> <li>• Full eco-impact of incineration unclear</li> </ul>

## PRODUCT PERFORMANCE COMPARISON

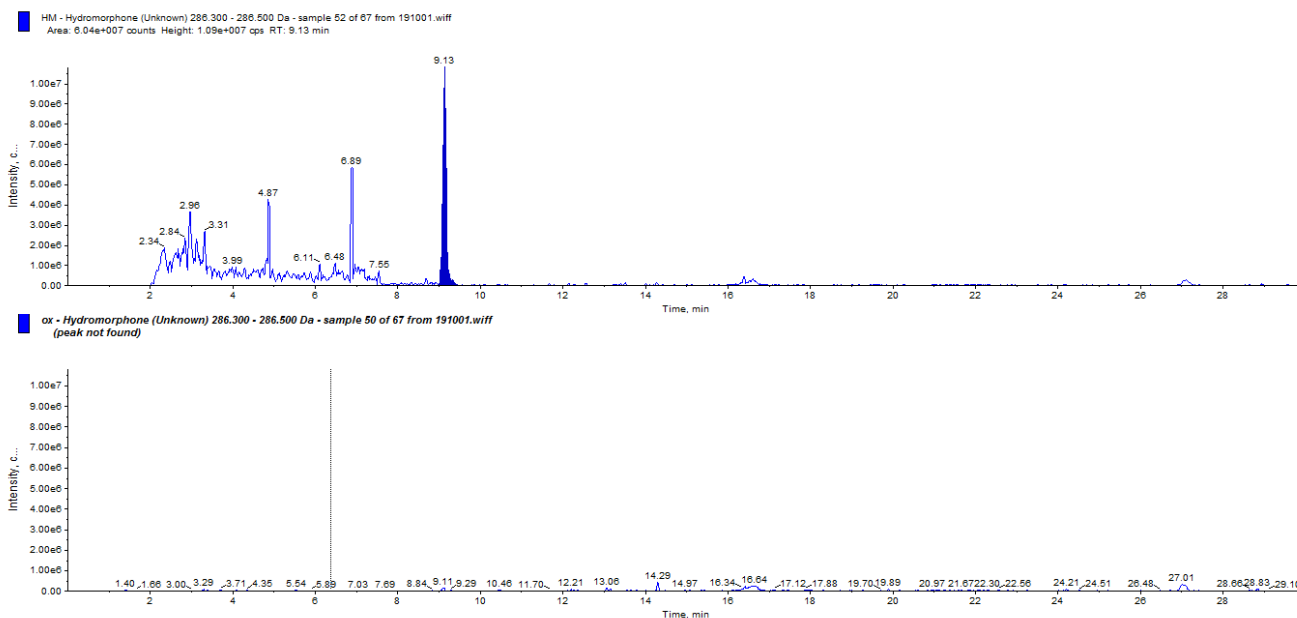
The amount of API still detectable by HPLC-MS/MS after treatment with each disposal product is reflected in the table below as "% Detected." Adsorbed or bonded portions of the API that are hidden, though not detected by HPLC-MS/MS, still present a risk for diversion since they have not been destroyed. All or part of the adsorbed/bonded drug molecules have potential to be recovered from the disposal product.

PRODUCT	ACTIVE INGREDIENT(S)	% DETECTED FENTANYL	TEST TIME	% DETECTED MORPHINE	TEST TIME	% DETECTED KETAMINE	TEST TIME
SafeMedWaste	Chemical Destructant	0%	2 hrs	0%	2 hrs	0%	2 hrs
Competitor 1	Charcoal Adsorbant	100%	2 hrs	100%	2 hrs	>85%	2 hrs
Competitor 2	Charcoal Adsorbant	30%	2 hrs	30%	2 hrs	100%	2 hrs
Competitor 3	Deterrent/Denaturant	100%	2 hrs	67%	2 hrs	>15%*	2 hrs

All testing was conducted by an independent, DEA-licensed, cGMP-certified, ISO 17025 laboratory in accordance with manufacturer's directions for use. All tests were conducted using identical drug samples, test methods, and equipment. \*Some ingredients in this product eluted at the same time as the ketamine peak, which may have oversaturated the MS detector.

Marketing claims for drug disposal products can sometimes be misleading, difficult to understand, or simply lack sufficient scientific data to be trustworthy. Access to comprehensive, reliable test data in an easy-to-understand format can help registrants build more effective and efficient waste management strategies to limit risk exposure and make compliance easier. Every API on the SafeMedWaste Compatible Drug List has been tested by a highly regarded independent, DEA-licensed, cGMP-certified laboratory to confirm safety and destruction efficacy when used with SafeMedWaste. Detailed test data is available to qualified interested parties.

## DESTRUCTION OF HYDRMORPHONE WITH SAFEMEDWASTE



The top graph represents HPLC-MS analysis of a Hydromorphone standard. The bottom graph represents HPLC-MS analysis of the byproduct of a Hydromorphone sample destroyed by SafeMedWaste.

## SAFEMEDWASTE VALIDATION TESTING

### HPLC-MS/MS

HPLC-MS/MS is used to effectively identify and measure the mass of the analyte and fragmentation of the mass units of every API before and after destruction with SafeMedWaste. HPLC-MS/MS provides greater accuracy than UV-VIS or HPLC-UV when determining destruction of a drug molecule. Every drug on the SafeMedWaste Compatible Drug List has passed this test.

### TCLP

The Toxicity Characteristic Leaching Procedure showed that SafeMedWaste does not leach any banned or hazardous chemicals into the environment.

### DESTRUCTION BYPRODUCT

Chemical digestion of compatible controlled substances with SafeMedWaste yields no remnants, derivatives, or analogues that can be used to resynthesize the original drug. HPLC-MS/MS testing of the destruction byproduct for each compatible drug shows that the drug has been broken down to its basic elements, and the resulting byproduct is non-hazardous, pH neutral, and no longer effective in humans or animals.

### METHOD 1040

The Method 1040 test is used to evaluate the potential of an oxidizing solid to increase the burn rate or intensity of a combustible substance. Testing of SafeMedWaste with certain Dool listed RCRA drugs did not show an increase in the burn rate or intensity of the drugs.

### GC-MS

Gas Chromatography – Mass Spectrometry (GC-MS) off-gassing studies of controlled substance excipients added to SafeMedWaste show that no hazardous, volatile, or flammable vapors are released.

SCAN QR CODE FOR A COMPLETE LIST OF CURRENT COMPATIBLE DRUGS.

