



BIO-RESPONSE SOLUTIONS



Alkaline Hydrolysis
PET SYSTEMS



a safe &
eco-friendly
alternative
to flame cremation
and burial



**We offer a wide variety of systems for the aftercare
of our smallest and largest pet companions.**



**BIO-RESPONSE
SOLUTIONS**

90%

less energy used than
with flame cremation

0

emissions of harmful
greenhouse gases

20%

more ash remains returned
to the family than with
flame cremation



>20

years of experience making the best
alkaline hydrolysis equipment

>95%

of pet owners choose the water
process when given the choice

>2000

veterinarians are currently
offering this option
to their families

gentle &
respectful

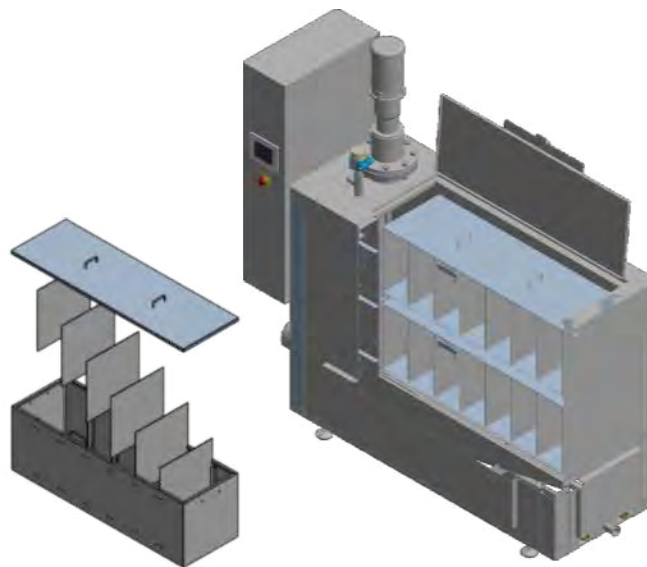
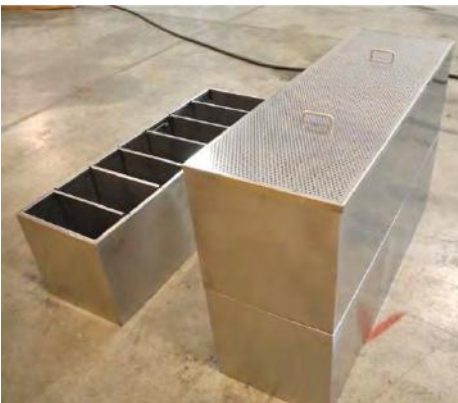


Capabilities

✓	Individual Pet Compartments
✓	Communal
✓	Single-Pet

- PET-400 Capacity: 1 to 400 lb (min-max)
- PET-550 Capacity: 1 to 550 lb (min-max)
- Cycle Time: 20 hours for segregated / communal cycles
12 - 20 hours for a single pet (size - dependent)
- Up to 14 compartments (two basket levels, each with seven optional compartments)
- Optional mini-compartments give up to 24 possible compartments
- User determines the size of the individual compartments
- User selects the size of the cycle (low or high)
- Can process a single-pet cycle

- Start the process, and leave!
- Users may run a full level or low level cycle
- The average daily labor per cycle (load, unload, process bone remains for return) is 1.5 hours



The PET-400 and PET-550 dividers can be adjusted to accommodate any size of pet. The dividers can be completely removed to process a very large pet or communal cycle. A combination cycle can be processed where select pets are placed in private compartments, while other pets share a communal space.

EXAMPLE INSTALLATIONS





Capabilities

✓	Individual Pet Compartments
✓	Communal
✓	Single-Pet

- **PET-550 Capacity:**
50 to 550 lb (min-max)

- **Cycle Time:**
20 hours for segregated / communal cycles
12 - 20 hours for a single pet
(size - dependent)

- Up to 14 compartments (two basket levels, each with seven optional compartments)

- Optional mini-compartments give up to 24 possible compartments

- User determines the size of the individual compartments

- User selects the size of the cycle (low or high)

- Can process a single-pet cycle

All the benefits of the PET-400 plus more!

- 30% more volume than our PET-400
- Made for businesses with larger volume of animals
- 6 inches deeper front to back
- No additional room space required



PET-550



PET-550 and PET-400



PET-550 and PET-400 Baskets



Capabilities

✓	Individual Pet Compartment
✓	Communal
✓	Single-Pet

- **PET-100 Capacity:**
1 to 100 lb (min-max)
- **Cycle Time:**
6 - 18 hours dependant on animals and size
(size - dependent)
- Made for multiple small animals or one larger animal for an independent cycle.
- Can run 3 different water cycle levels for maximum efficiency
(high, medium, low)
- Can process a single-pet cycle
- Lowest in class in energy consumption
- Easy installation

All the benefits of our larger systems in a smaller machine!

- Made for businesses with limited space availability
- Can process communal cycles
- Perfect for Vet Clinics with limited floor space



PET-100 with Basket



PET-100 with lid closed



PET-100 Basket

S-2500
S-4000

M-2500
M-4000

LARGE CAPACITY SYSTEMS



Capabilities

✓	Individual Pet Compartments
✓	Communal
✓	Single-Pet (horses, etc.)

- Capacity: S/M-2500 = 500-2500 lb
S/M-4000 = 750-4000 lb
- Cycle Time: 20 hours
- Features removable internal grates that perform like a basket system to eliminate lifting and facilitate cleaning
- Unit tilts hydraulically to any angle, and lid fully opens to facilitate loading of mortalities
- User selects the size of the cycle (low, mid, or high)
- Can process a single large animal, such as a horse (minimum weight 500/750 lb)
- Units are available as stationary installations, or in mobile format (on a trailer)
- Compartment separation technology can be used with this system for high volume operations (basket system)



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Large Capacity Systems are ideal for private horse cremations and/or large volumes of pet mortalities (high volume crematories, animal shelter contracts, etc.). The addition of our compartmentalized basket system allows for the capability of segregated cycles.

Mobile systems are ideal for co-op/shared equipment use, services provided on-site, or on-site disease response to avoid transporting infected mortalities.

EXAMPLE INSTALLATIONS



Alkaline Hydrolysis Pet Systems

Features and Specs: Low Temperature Alkaline Hydrolysis Systems for Pet Dispositions

Model		Single Basket Systems	Compartment Separation Technology		Large Capacity Systems	
		<div>PET-100</div> <div></div>	<div>PET-400 PET-550</div> <div></div>		<div>S-2500 S-4000 M-2500 M-4000</div> <div></div>	
Capacity	Max	110 lb	400 lb	550 lb	2500 lb	4000 lb
	Min	1 lb	1 lb	1 lb	500 lb	750 lb
Unit Configuration		<ul style="list-style-type: none">Single unit with mounted controls	<ul style="list-style-type: none">Single unit with mounted controls		<ul style="list-style-type: none">Single, large vessel with mounted controls	
Basket Configuration		<ul style="list-style-type: none">Single basketSingle-pet (min 1lb), or communal capability	<ul style="list-style-type: none">Two large levels of baskets for divisionSingle-pet (min 1lb), individual pet compartments, or communal capability		<ul style="list-style-type: none">Unit tilts hydraulically to any angle, and lid fully opens to facilitate loading of mortalities	
Possible # of Individual Compartments		N/A	14 or 24 (option)		N/A or 84 (baskets; option)	
Turnaround Time		12-16 hours	20 hours		20 hours	
Operating Temperature		<ul style="list-style-type: none">199-208°F (92.5-97.8°C); User-Selected				
Operating Pressure		<ul style="list-style-type: none">Atmospheric pressure				

Drain Temperature	<ul style="list-style-type: none"> • Automatically controlled (standard) • Discharges below regulation temperature 	
pH Control	<ul style="list-style-type: none"> • Automatic discharges below regulation pH 	
Control System	<ul style="list-style-type: none"> • Allen Bradley Micro800 color touch-screen HMI (*large capacity systems have different controls) • Allen Bradley Micrologix PLC • Intuitive operator & control screens • Manual override screen for testing and troubleshooting • Uninterruptible power supply; safety for power outage • UL-listed NEMA-4 control panel • Units available in English or Metric measures; multiple languages available • Ethernet connectivity for remote diagnostics 	
Required Utilities	<ul style="list-style-type: none"> • Drain/Sewer connection • Vent line • Fresh water supply (cold and hot water recommended) • Electricity: 208/220 Single-phase, or 208-600V 3-phase, 50 or 60 Hz (<i>large capacity units operate on steam, natural gas, or propane</i>) 	
Recommended Ancillary Equipment	<ul style="list-style-type: none"> • Scale • Remains processor (cremulator/pulverizer) • Hoist for maneuvering large pets and loaded baskets 	<ul style="list-style-type: none"> • Drying closet room or drying oven • Cooler or freezer storage unit • Eye wash station
Additional Equipment Options	<ul style="list-style-type: none"> • Option: Cycle printer • Option: Wireless connectivity • Option: CO2 or citric pH control • Option: Discharge pump 	<ul style="list-style-type: none"> • Option: Liquid chemical injection • Option: Load cells for automatic weighing • Option: Specialized filter system • Option: Remote viewing (cell phone and/or computer)
Notable Benefits	<ul style="list-style-type: none"> • Patented designs that allow processing of multiple pets, each in their own individual compartment (select models) • No expensive steam generator/boiler required • Operates with standard utilities available to most facilities • No additional storage tanks required • No submerged pump seals • Low equipment cost, simple operation, and reliability • Substantially lower operating cost than incineration/cremation • Lowest energy consumption and operational cost per disposition for alkaline hydrolysis systems • Does not require EPA Air-Quality permitting, regulation, or tracking • Does not require incinerator zoning considerations • Experienced team with 24/7 support 	



PATENTS
PENDING
PATENTS
ISSUED



BIO-RESPONSE
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Gentle care.

Alkaline Hydrolysis is a gentle, eco-responsible alternative to fire-based cremation.

Energy and cost-effective, this process accelerates the natural decomposition process using 90% less energy and without the harmful emissions of fire-based cremation.



**Enhancing your care of animals.
Right to the end.**

What is alkaline hydrolysis?

Alkaline hydrolysis (AH) is an environmentally friendly alternative to flame cremation and burial. AH is often referred to in practice as Aquamation.

How does AH work?

This process is essentially an accelerated version of what takes place during natural decomposition. With Bio-Response's patented process, each individual pet is respectfully placed in its own individual compartment. A combination of gentle water flow, temperature, and alkalinity are used to accelerate the natural process of tissue hydrolysis. All organic material is reduced to its most basic building blocks.

At the end of the process, there is no DNA or RNA remaining. The sterile process water is released for recycling (our bodies are approximately 65% water to begin with), and only the inorganic bone minerals remain. Each individual pet's remains are rinsed, dried, and processed into powder for return to the family in an urn.

Is there an ash to return to the family as there is with flame cremation?

Yes. A powdered ash is returned to the family in the same manner as remains from flame cremation. This ash is pure calcium phosphate from the mineral ash of the bone. As it is without the carbon discoloration that comes from burning, it is typically lighter in color. Alkaline hydrolysis will yield about 20% more final ash remains on average than flame cremation.

The ashes will keep in an urn, or may be buried or scattered in a special place as some families choose to do. Aquamation ashes can be used for any type of memorialization, such as cremation jewelry, memory glass, clay memorials, tree urns, man made diamonds, etc.

Why is this considered an environmentally friendly choice?

With Aquamation there are no direct emissions of harmful greenhouse gases or mercury to the atmosphere. This process does not burn any fossil fuels. It is very energy efficient - greater than 90% energy savings compared to flame cremation, with 1/10th of the carbon footprint.

Are the alkalis used in this process safe for the environment...?

Yes. The water-based process uses a solution of 95% water and 5% alkali (a combination of sodium and potassium hydroxide). The alkalis used in this process are the same alkalis used in biodiesel production, common cosmetic products, body washes, shaving creams, and even in food preparation. At the end of the process, the chemical has been completely consumed, neutralized, and no longer remains in the water solution.

What is the impact of the water usage?

Incredibly low. Our Aquamation process for pets uses the same amount of water one would use to give a pet a bath — far less water than other home activities such as washing a car. During the process the water is used to carry out hydrolysis (the process of dissolving the body into the water), and also for a final clean rinse of the vessel and remains. At the end of the process, 99% of the water is returned to the wastewater treatment facility where it is recycled in the same manner as all other wastewater.

Are the final bone remains safe to handle?

Yes. The remains are 100% safe, pathogen and disease free after the process. The final remains are cooled during the clean water rinse and are safe to handle with bare hands immediately following the process. After a drying procedure, they can be processed for return to the family.

Can the remains be processed in a standard cremains processor?

Yes. Standard funeral industry cremulators are used for processing the bone remains into a returnable ash.

Does the system require supervision while in operation?

No. Once the user has initiated the cycle from the touch screen, the system will run and complete the entire cycle automatically. The user may return at a convenient time to collect the rinsed final remains.

Can one person operate the system?

Yes, the system can be easily operated by one person. We recommend an overhead hoist for lifting the baskets and handling large pets.

What utilities are required?

Our systems require only standard utilities. The equipment is built to your electrical specifications. Most machines use electricity and water only. We do recommend a hot water heater be installed to provide hot water fill and rinses. Large systems require propane or natural gas.

Are there any long-term maintenance items?

Unlike a retort, this system can be used for many years without any major maintenance items. There is never any repair equivalent to rebricking a fire crematory in terms of cost and downtime. Regular annual maintenance items are extremely low-cost, and any components can be replaced as needed by a local plumber or electrician.

What is the noise level of the system?

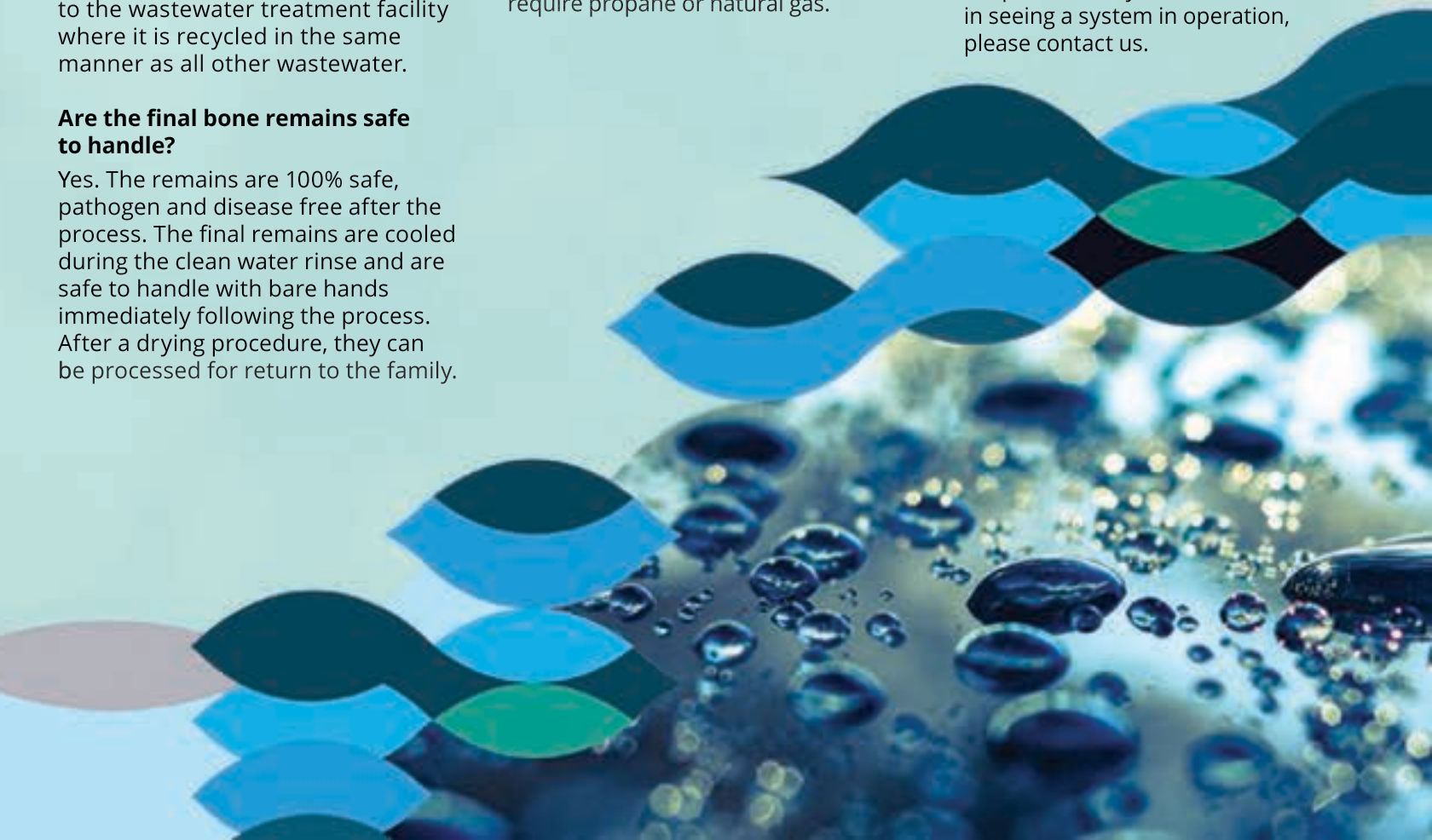
The system is extremely quiet in operation (<75dbA).

Are your systems available for purchase worldwide?

Yes. We are a global company with over 35 years' experience working with overseas customers. Over half of our business is conducted overseas!

Do you have any systems in operation?

Yes, we have numerous systems in operation. If you are interested in seeing a system in operation, please contact us.



Family Owned & Operated

**Constant
Innovation**

**Energy
Conscious**

**Cutting-Edge
Technology**

**Over 20 years of
direct experience manufacturing
alkaline hydrolysis
equipment**

**Forward
Thinking**



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Contact Us

Call us at **(317) 386 - 3500**

Email us at **info@bioresponsesolutions.com**

Visit our facility in **Danville, Indiana**

Visit our website for more information:

www.aquamationinfo.com

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Nobody does it better.



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