

# Cremation. . .



Cara Fernandez

I know that cremation is a difficult subject. It's one that usually comes at a really tough time in your life or in preparation for that time. It's also a topic many of us are simply uncomfortable asking questions about, even when we do have questions. This is my attempt to explain the process and, hopefully, answer some of the questions that you may have about cremation and our service.

## What is cremation?

Let's start with the standard definition: cremation "is a process of reducing a body to its' basic elements". Essentially, through cremation, the body is reduced to bone fragments and a small amount of trace minerals. This is accomplished by exposing a body to intense heat and flame, which results in the process of vaporization. In many ways, it is a natural method of "speeding up" a natural process. The end results of cremation and of decomposition are essentially the same. Through both processes, the body of a once living entity is reduced, or transformed, back to its' inorganic molecular beginnings. Cremation, however, accomplishes this end result much, much faster.

As a species, we have always tried to control, well...basically everything. The impact of death on the body of one who is loved is no exception. There have been two opposite trains of thought and practices on the matter. There are those who wish to hold the natural process of decomposition at bay for as long as possible. This desire has resulted in the practices of mummification, taxidermy, embalming, freeze drying, and even cryogenics. The other mindset wished to hasten the natural process. Cremation is the result of this mindset and has been practiced by our kind since we formed some mastery over fire.

Over time fire has come to represent the concepts (literally and figuratively) of warmth, comfort, transformation, purification, life and the afterlife. Cremation allowed our forefathers to provide for the disposition of deceased loved ones that bypassed the natural process of decay. The practice could be accomplished when terrain or weather prohibited burial. Cremation kept them safe from scavengers. As with burial, the practice included meaningful ceremonies. Cremation allowed nomadic peoples to keep with them traces of loved ones who fell along the way. When the practice of cremation began, it was accomplished through the construction of funeral pyres. As we advanced in our civilizations and technologies, so did the cremation process.

# Cremation. . .



Cara Fernandez

## What is a crematory, who regulates it and how does it work?

A crematory is a machine designed for the specific purpose of reducing a deceased body to basic elements. A crematory is a pathological incinerator, however, the practices used and the procedures followed are really the distinguishing factors between the terms crematory vs. incinerator. Modern crematories are constructed of steel, fire brick and heat resistant mortars. These specialized machines are capable of handling heat in excess of 2500 degrees Fahrenheit. Like everything else, they are computerized. Modern crematories are also specially engineered and constructed so that they release very limited pollutants into our environment. (Just a footnote, but a crematory used for pets actually releases even less pollutants than one for humans. That's because pets, in general, have limited dental work, fewer implants, are not embalmed and few have ornate caskets for cremation.) The size of the machine is determined by the actual combustion rate, that is the per pound, the machine can handle in an hour. This rate is determined when the machine is loaded to full capacity.

Standard crematories are usually rated around 150 pounds an hour. There are smaller and much larger machine available. Crematories are permitted through the state in which they are located under that state's Department of Environmental Protection agency. The requirements for permitting vary from state to state. In Florida, the permitting process covers: the engineering of the machine in regard to its purpose; minimum operating temperatures/air retention time; emissions standards; its maximum usage (literally, how many hours a year the crematory can be run at its licensed capacity); what cremation containers are used; training of the crematory operators; and to maintain a log on the use of the machine. This is where the regulation of human cremation and pet cremation part company. Few states have any regulations that impact the actual procedures of pet cremation providers, including Florida.

Our crematory is a Power Pak II purchased through Matthews International. The design of our machine is essentially the same as those manufactured for human cremations. We use natural gas as our fuel, with the capacity of 2.5 million BTU's an hour. The only notable difference in our machine and those used for humans is the addition of a second flame jet positioned toward the rear of the retort. The second retort jet is customary in pet crematories because most users conduct multiple body services.

The way our machine works is not really that complicated. There are two separate chambers within the crematory. The after-chamber is located at the bottom

# Cremation...



Cara Fernandez

of the machine. This lower chamber is heated through the primary burner of the machine and must maintain a temperature of no less than 1600 degrees during the cremation process. We run higher. The intense heat of the after-chamber purifies the air that is that is released into the atmosphere. The retort is located directly above the after-chamber and is where a body is placed for cremation. The retort has an independent burner system for the cremation process. The air from the retort must pass through the after-chamber before being released into the air.

Cremation is a controlled combustion procedure and it is a dynamic process. There are literal jets of flame involved and a massive amount of air circulation. The blower system utilizes three different types of air movements within the machines chambers at different points in the cremation process. So much air is used by the machine that negative air pressure would develop within the building without a special ventilation system. Additional turbulence is created within the retort and the after-chamber due to the extreme heat involved and the process of combustion. Our retort measures almost four by nine feet in dimension. Following a cremation, of even a very small companion animal, the entire hearth of the retort must be sweep to collect the remains from that cremation service. The time variations that it takes to properly perform the actual cremation may be surprising. While our crematory is rated at 150 pounds an hour, this rate can only be accomplished if the machine is loaded to full capacity. The cremation of a small pet, say someone weighing less than 5 pounds, will take a minimum of a half-hour, and usually closer to twice that, to properly complete. Yet, the cremation of a pet weighing around 150 pounds may take under 2 hours. The first cremation of the day is conducted with a cool hearth, which means this service will take longer to complete than sequential cremations of the day.

There are two different ways that we conduct cremations. The first cremation of the day is a cold start cremation. The body is placed within the retort before the blower system and the after-burner is initiated. Although the after-chamber may take over an hour to preheat to the appropriate temperature, the temperature within the retort remains low. The cremation of the body does not begin until the burner within the retort is actually started. Sequential cremations are performed on a warm hearth. The temperature within the after-chamber is raised above the minimum cremation temperature prior to the body being placed within the retort. The temperature within the retort is also high. With sequential cremations the actual cremation of the body may begin as the body is placed within the retort. During a cremation, there are times that the progress of the service will need to be checked and the body will need to be repositioned to help with the process. Following a cremation, the remains cannot be removed from the retort until the chamber is adequately cooled. This is simply because there are not efficient clean-out tools that

# Cremation. . .



Cara Fernandez

can handle the temperatures and thoroughly remove the remains. Although steel brushes can handle the heat, they do not thoroughly remove the remains and tend to launch them from the crematory. Soft bristled brushes do an excellent job, however, synthetic brushes melt and straw brushes tend to ignite if used when the chamber is too hot. The cool down period needed to properly remove cremated remains varies from 20 minutes to over an hour. When the machine has adequately cooled, the remains from the service are moved to the front of the chamber and sweep into the collection container.

## What are cremated remains?

Whether human or animal, our bodies are composed of the same materials. 98% of our bodies consist of only 5 basic elements that take various forms. These elements are: oxygen, carbon, hydrogen, nitrogen and calcium. Now this is an “approximate”, but our bodies’ are composed of about 85% moisture. During the cremation process this moisture is “liberated” from its liquid state to vapor and it is literally released into the atmosphere. Our bodies are also comprised of about 10% of materials called combustible solids. These materials include certain body tissues, such as fat, and they are actually.... well, combustible. They produce approximately 1,000 BTU’s of energy per pound in the cremation process during their transformation from a solid to a vapor state. (So... in theory, spontaneous human combustion is possible... sorry, I just had to add that...) The remaining 5%’ish of body weight is composed of non-combustible materials. This, approximately 5% of a body, is the end result of the cremation process. This material is primarily calcium phosphate or fragile bone fragments, some may be fairly large and easily identified, while the majority are more pieces of bones. There are also small amounts of certain trace minerals that remain.

Cremated remains are also called cremains. Whether human or animal the amount of actual cremains can vary greatly from individuals of the exact same body weight. As with humans, our animal companions, have different bone densities (non-combustible materials), and proportions of combustible materials (body fat). Thus, if I happened to be hit by a truck tomorrow (being a middle-aged, pleasantly plump and somewhat out-of-shape woman) and my cremains were compared to those of an athletic young man of the same body weight..... Well, I would seem petit by comparison. Likewise, the bodies of two dogs weighting exactly the same could have very different amounts of cremains. An example would be a large boned breed such as a Rottweiler, in good physical shape and in the prime of his life (when bone density is greatest) and that of an older Golden Retriever who led a sedate life and gained “a few” extra pounds. The amount of cremains from the Rottweiler could be literally twice that of the Golden through the cremation process.

# Cremation. . .



Cara Fernandez

For individuals who have had surgeries, objects such as staples, pins and other surgical implants often survive the cremation process. There are also times that Christmas ornament hooks, fish hooks, BB's, rocks and other objects may be present. Through the cremation process itself, there will be other materials included in the cremains that are simply the result of the process. All crematories shed particles of fire brick, mortar and dust in the process of cremation. This is due to the temperature extremes within the retort and the fact that most things, crematories included, expand and contract with heat variations. In fact, despite the specialized materials and design of crematories, cracks will form in the mortar of the floors and ceilings of the chamber and pieces of firebrick will literally crack off (usually after its first use). Also, the fire brick and mortar used in the construction of crematories are rough, porous substances. No matter how prudently a chamber is cleaned or even vacuumed in between cremations, there will be a small amount of residual dust and even minute bone fragments from services held before. Even the brushes used to remove the remains may lose bristles or remnants of bristles in the clean-out process.

Health and safety codes require that any body, whether human or animal be placed in a sealed and leak resistant container for cremation. We use a thick gauge polyethylene body bag that does not release harmful chemicals, such as polyvinyl chlorides, into the air during the cremation process. (Similar to body bags are used for people, ours just don't have zippers.) There are many personal items that can accompany the body for cremation, such as flowers, photographs, toys, locks of hair, notes, treats and bedding. There are other things that can't, such as rubber or plastic toys, certain synthetic fabrics and battings, foam products, and explosive things like pacemakers and alcohol. There can be some residual left from anything cremated with a body. We discourage the use of caskets. They are expensive to purchase, are not required for pet cremation and can leave a substantial residual. When the cremated remains are removed from the chamber, anything that can be identified as foreign to the body is removed from the cremated remains.

Cremains are often mechanically processed into small particles. These granular particles are what is referred to as "ashes" and most people find them more comfortable to view than non-processed remains. Although the weight of processed and non-processed cremains should be the same, the actual volume of processed cremains is significantly less. Processed cremains can range in color from a very light to medium gray to a light tan. The color of cremated remains is determined by the length of the cremation procedure and individual characteristics, like age, metals and minerals that may be present and even arthritis. Properly cremated remains are not hazardous and they pose no health risk to the living. If the cremated remains are to be scattered or buried, we strongly recommend that they be processed.

# Cremation. . .



Cara Fernandez

## Single-Body Pet Cremation Services Through Kindred Hearts

Since the terms “Private Cremation” and “Individual Cremation” can have such a broad variety of meanings in regard to pets, we use the term Single-Body Cremation to describe our service. A Single-Body pet cremation means that the body of one, and only one, companion animal is cremated during the service. Our Single-Body cremation is conducted with only one body no matter if the companion animal weighted 4 ounces or 200 pounds or whether the family is or is not present for the cremation.

When the body of a companion animal comes into our care for a Single-Body cremation service, the identity of that individual is maintained through-out their time with us. They do not leave our care or facility until they are returned to their family. The only exception is if we transport to body to a veterinary clinic for necropsy (an autopsy for pets) at the request of the family. We visually observe each body that comes into our care to ensure that the description provided actually matches the body. This very important because bodies removed from clinics are often bagged when we take them into care. The only alteration that is done to the body is the removal of locks or clippings of hair and the collar, for the family. When requested we have plucked a few whiskers and taken toe nail clippings. We offer paw print impressions ranging from three-dimensional castings to inked paw prints. We do not offer embalming services. Kindred Hearts is fortunate to have local groomers available if professional services are requested for a formal viewing and memorial service. When we conduct a cremation service, not only has the retort been prudently cleaned, so have the tools or other equipment that we use in a service. We cool the retort following the cremation so that the retrievable remains of that individual can actually be retrieved. The family of the companion animal is welcome to observe the initiation and conclusion of the cremation service, and to stay with us during the cremation. We can also notify the family by phone when the cremation begins and ends. We are not “open” for business when we conduct cremations. No one will observe the body of your companion or be a party to their cremation that you do not authorize. I would want my companion’s body and their time in care treated with dignity. Our clients feel the same way. The client we serve is you and we will do what we can to help you through this most difficult of times.

# Cremation...



Cara Fernandez

## Finally, the conclusion!

I hope this has been helpful in understanding the process of cremation and why our focus is the provision of single-body pet cremation services. I would like to openly thank the Matthews Cremation Group for their well researched statistics.

Kindred Hearts, Pet Bereavement Services, 29 Hughes St., Fort Walton Beach, FL 32548,

Phone: 850.244-3800, Email: <mailto:Cara@kindredheartshome.com>

Website: [www.kindredheartshome.com](http://www.kindredheartshome.com)

Copyright 2008, Cara Fernandez