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# Funeral Industry Dumps Formaldehyde Into Soil

Analysis by Dr. Joseph Mercola Fact Checked | April 29, 2023

## STORY AT-A-GLANCE

- Green, eco-friendly and natural burials are becoming more popular among people wishing to reduce their environmental impact at death
- Conventional burials are both costly and environmentally destructive as more than 4 million acres of forest are cleared each year to make caskets
- Conventional burials involve toxic embalming fluids including formaldehyde, 800,000 gallons of which is dumped into U.S. cemeteries each year
- Cremation, while slightly eco-friendlier, still results in smoke emissions that contain harmful substances such as mercury vapor from dental amalgams
- Alkaline hydrolysis is a green burial alternative that uses water and heat to accelerate the body's natural decomposition process, reducing it to soft bone fragments

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Most of you reading this article right now probably do your best to live a green and eco-friendly lifestyle. You likely buy local, organic and regenerative food when possible and use chemical-free cosmetics, personal care products and household cleaners. You may even recycle and drive an electric vehicle. These actions are commendable and bode well for our planet's future.

But what about your burial? Conventional burials (including cremation) are characterized by ground- and water-polluting chemicals, man-made greenhouse gas emissions and

energy-intensive practices including the vast deforestation to harvest wood for making caskets.

The featured film, "Eco-Death Takeover: Changing the Funeral Industry," reveals just how taxing the "funeral industrial complex" is on our environment and why we should consider eco-friendlier alternatives such as green or natural burials.

In Western culture, the concept of death is rather taboo. Though an inevitable fate for all of us, death itself is rarely discussed, let alone the practices and cultural traditions that follow the passing of a loved one. This could be why you've never heard of or thought about the environmentally damaging processes that occur with conventional burials in America.

The film was made by The Order of the Good Death, an organization founded by mortician and funeral homeowner Caitlin Doughty. Doughty, an advocate for green burials, is the author of two books, "Smoke Gets in Your Eyes: And Other Lessons from the Crematory"[1] and "From Here to Eternity: Traveling the World to Find the Good Death."[2]

## Embalming Our Dead With Formaldehyde

The film starts out talking about what happens to our corpse after we die — a squeamish-like topic unfit for those with a weak stomach, but an important (and relevant) subject nonetheless. Naturally, our bodies decay when we die. It's inevitable. Yet, due to our cultural traditions, the funeral industry goes to great lengths to delay this natural process, pumping the circulatory system and body cavity with a carcinogenic cocktail of preservative chemicals called embalming fluid.

The main ingredient in embalming fluid is formaldehyde,[3] a hazardous substance linked to cancer and irritation of the eyes, nose and throat.

Formaldehyde was discovered in 1867 by chemist August Wilhelm von Hofmann.[4] The chemical replaced the use of arsenic in the 20th century and became the primary

ingredient for embalming corpses. Though highly toxic to humans, formaldehyde is the most popular chemical preservative among embalmers due to its effectiveness.

Debbie Dodge, president of the Dodge Company in Cambridge, Massachusetts, which markets embalming fluid to funeral homes, told The New York Times,[5] "Formaldehyde is the perfect product for fixation and short-term preservation. Formaldehyde will firm up the body tissue more than any of the nonformaldehyde products out there."

Formaldehyde exposure in the workplace is most common among embalmers, dentists, pathologists, veterinarians and those working in the clothing industry or furniture factories.

For embalmers, one of the main routes of exposure is inhalation, meaning effective ventilation is key to protecting the health of embalmers. Formaldehyde levels during embalming can reach up to 9 parts per million (ppm); 0.75 ppm is the Occupational Safety and Health Administration's (OSHA) maximum permissible level.[6]

## Delaying the Inevitable

In the U.S., 800,000 gallons of formaldehyde is dumped into the soil each year. How did we get to a place of dumping such vast amounts of chemicals into the Earth to preserve a body that's still going to decompose? The process of embalming was first developed in the late 1800s as a means to preserve the body for scientific study. It later became popular in the funeral industry as demand increased to display the body of the deceased.

The practice grew more popular during the Civil War as embalming was used to preserve the bodies of deceased military men — some of whom traveled great distances by train or horse and buggy — to return home for their burials. Attempts to preserve the body do not stop with embalming.

Humans are placed in a modern casket usually made from wood, metal or a combination of both. The casket is then placed inside a burial vault or grave liner

designed to prevent the Earth from sinking in around the grave — in other words, a casket for your casket.

This process is not only costly (averaging $9,000 to $11,000 per funeral in the U.S.), but also takes a toll on the environment. Each year, an estimated 4 million acres of forests are cleared to make nondegradable wooden caskets in addition to 115 million tons of steel and 2.3 billion tons of concrete.[7]

All of this is done in an effort to delay a process that's inevitable — natural decomposition. Interestingly, the U.S. and Canada are the only nations where embalming is widely practiced.

## Crematories: Raining Formaldehyde

By now you may be wondering about cremation. It cuts back on a lot of the resources required by a conventional burial, so isn't it more eco-friendly? Yes and no, says Doughty, adding that direct cremation or cremation done without visitation or embalming is less costly and has its eco-friendly perks, i.e., no embalming and no casket. But where there's a crematory, there's fire, and where there's fire, there's smoke, she says, adding:

> *"In the case of a crematory, that smoke can contain a lot of harmful substances including carbon dioxide, carbon monoxide, hydrochloric acid, sulphur dioxide, dioxin and carcinogens polychlorinated dibenzodioxins and polychlorinated dibenzofurans."*

Another health and environmental concern linked to crematories is the mercury vapor dispersed into the air from a corpse with **amalgam dental fillings**. The chemical pollution is even worse with corpses embalmed with formaldehyde. Similar to mercury, vaporized formaldehyde remains suspended in the atmosphere until it bonds with water and rains back down on the Earth. Clearly, there must be better ways to bury our dead.

Measures are being taken to make cremation less destructive on our environment. These include pollution filters, which reduce air pollution but do not eliminate it. Some crematories are reusing the massive amount of energy required to cremate bodies to

heat homes, public buildings and even swimming pools. But as the film notes, it's still "putting a Band-Aid on an inherently flawed process."

## Green Alternatives to Conventional Burials

So, what can be done to make the traditions and processes surrounding death more eco-friendly and less toxic? The solution may lie in a process called alkaline hydrolysis, also referred to as aquamation, water cremation or flameless cremation. For decades, alkaline hydrolysis has been used in medical schools and for livestock and pets. It uses mainly water to accelerate the natural decomposition process of a corpse, dissolving the tissue and reducing it to soft bone fragments.

This is accomplished by placing a corpse, sometimes dressed in a biodegradable shroud, into a pressurized steel container filled with 95% water and 5% potassium. Over a two- to three-hour period, the alkaline pressure and heated solutions circulate around the corpse, mimicking the chemical decomposition process the body undergoes when buried.

The remaining bone fragments are pulverized and given to loved ones, while the liquid broth left behind — a neutralized mixture of amino acids, peptides, sugars and salts — can either be repurposed into fertilizer or safely discarded.

## Aquamation Versus Flame-Based Cremation

Compared to cremation, aquamation reduces the carbon footprint by more than 75%, while utilizing one-eighth the amount of energy, according to the Funeral Consumers Alliance. With aquamation, mercury vapors are contained and recycled instead of vaporized.[8]

Also, because corpses aren't being incinerated at such high heat — upward of 1,800 degrees Fahrenheit — aquamation or flameless cremation results in fewer greenhouse gas and carbon dioxide emissions, rendering chemical emissions almost nonexistent, says Doughty.

But what about all the water used for aquamation? The process doesn't require as much as you might think. The amount of water used to reduce the body to soft tissue and flush out the alkaline hydrolysis machine is equivalent to less than three days' worth of water used by the average American, according to the film. Is aquamation the future of body disposal? Maybe. But it has to clear the legal hurdle first.

Aquamation or flameless cremation is currently legal in only 14 states, including California, Colorado, Florida, Georgia, Idaho, Illinois, Kansas, Maine, Maryland, Minnesota, Nevada, Oregon, Vermont and Wyoming. And, while legal in these states, alkaline hydrolysis is only permitted for the disposal of human remains in four states, meaning the others allow it for pets only.[9]

## Alkaline Hydrolysis: The Next Step in Death Technology?

So, what is the case against aquamation? To put it plainly, some people are disgusted or unnerved by the idea of dissolving themselves or their loved ones' body in an alkaline hydrolysis machine and flushing the remnants down the drain. Some may find it disrespectful to the dead. However, as Doughty points out, water cremation seems far less violent than burning a corpse in an incinerator.

Philosopher and alternative funeral advocate Phil Olson agrees, telling The Atlantic, "Burning grandma in fire seems to be violent. In contrast, green cremation is 'putting grandma in a warm bath.'" Alkaline hydrolysis isn't perfect. But it seems to be cheaper and less destructive to the environment.

## Natural Burials: Letting Nature Do Its Thing

Other green burial alternatives include natural burials. Natural or green burials are the simplest way to put a corpse in the earth and let nature take over with little to no environmental impact, according to the film. This is achieved by placing a corpse, either wrapped in a biodegradable shroud made of cotton or unbleached bamboo, into a casket made of biodegradable materials such as seagrass or willow.

The casket is then placed in a shallow grave measuring 3 to 4 feet deep. Once buried, nature takes over, allowing bacteria and insects in the soil to naturally break down the body and casket over time. Can natural burials lead to water and soil pollution? Not likely, says Doughty.

A study published by the Pan American Journal of Public Health found that pathogens don't survive very long in a dead body or the soil around it because a corpse buried in a shallow grave is exposed to oxygen more quickly, which accelerates the decomposition process.[10]

During decomposition, the body may heat up to over 100 degrees Fahrenheit, killing most, if not all, pathogens present at death. Soil and water contamination has been observed, however, in conventional cemeteries as a result of the toxic chemicals used in the embalming process.[11] The most significant difference between a conventional burial and a natural or green burial is the impact it has on our environment.

There are ways to make conventional burials greener with methods such as eco-friendly embalming and Earth-friendly caskets, but it's all an attempt to make a destructive process a little bit better, says Doughty. More people are opening their minds to greener alternatives when it comes to death. For example, the Bradshaw Celebration of Life Center in Minnesota reports that when given the choice, 80% of people prefer a green cremation.[12]

If you really think about it, green burials are the ultimate way to give back to the Earth, which has supported us our entire lives, says Doughty, adding: "You eat plants and animals in life, and in death, they get to eat you." In other words, with a green burial, the circle of life comes full circle at death.

## Sources and References


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