

## **Resomation—more than you wanted to know**

“Resomation” is a coined word that refers to the alkaline hydrolysis method of corpse/carcass disposal. Touted as a greener alternative to cremation, it is sometimes referred to as “bio-cremation”, which is a total misnomer since the process is completely chemical rather than biological.

Resomation is currently available in several states. A bill was introduced in the California legislature to make it legal here, but is currently pending further study. The FCA of California Board of Directors has cautiously endorsed the inclusion of resomation as a death care option as long as it complies with environmental regulations.

### **The Process in a Nutshell**

Alkaline hydrolysis uses a very high pH (alkaline) chemical (usually potassium hydroxide) to lyse (rupture) cell membranes, causing them to spill their contents and die. The process is extremely effective at destroying pathogens and has been used for years to dispose of animal carcasses as well as waste from bio labs and medical facilities. In combination with water and elevated temperatures, it can dissolve the flesh and organs off a body and even soften the bones in a few hours.

### **What you will hear**

“Resomation is an environmentally beneficial alternative to cremation and is both dignified and respectful,” says Resomation Ltd on their website.

“Resomation is an environmentally responsible, non-burn, water based process ... to rapidly breakdown the body leaving behind a pure white bio-ash” claims another article.

“The end result is a small quantity of green-brown tinted liquid (containing amino acids, peptides, sugars and salts) and soft, porous white bone remains (calcium phosphate) easily crushed in the hand...” says Wikipedia.

### **Some Facts**

The resomation process is *probably* less environmentally damaging than cremation. Cremation uses fossil fuels to produce the very high temperatures necessary to burn a body, and it fouls the air with mercury particulates, dioxins and other pollutants. Resomation, by comparison, uses lower temperatures and therefore less fuel, and emits little into the atmosphere except some localized unpleasant odors. However, the manufacturing process for the chemicals involved require significant energy inputs, and so cannot be counted benign. To be sure, the process requires only a few gallons of chemical per body, and a few dozen gallons of water, so the inputs compare favorably to, say, embalming or burial in fancy coffins.

There is more left behind than “pure white bio-ash” however. Cremation distributes the body into the air as gases and particulates, leaving behind only the unburnable parts, which are returned to the family as ashes. The law of conservation of matter tells us that when you dissolve a body with chemicals, you have a full body’s worth of mass left somewhere, plus all the water and chemicals. The softened, crumbly bone residue is simply the stuff that remains undissolved. The rest of it--the “small quantity” of liquid that Wikipedia says is left behind—is in fact about 100 gallons of effluent per 150-pound body\*. This effluent usually has a pH too high to be discharged directly into the sanitary sewer system, since it will kill the working bacteria at the sewage processing plant, so it must first be treated to lower the pH before it can enter the waste processing stream. Resomation providers, wishing to stress the dignity and respectfulness of their process, will probably omit the bit about becoming sewage. But then, there is nothing particularly dignified about being embalmed or being eaten by worms either.

It is likely that resomation as a method of dealing with human remains will become legal and will gain in popularity, especially as it becomes priced competitively with cremation. Resomation will be seen as—and probably is-- less polluting than cremation and it will likely be less expensive than conventional burial. But it is not inherently a low-impact process. Green burial and perhaps full-body sea burials still stand out as the most environmentally benign ways of dealing with human remains.

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\* <http://fss.k-state.edu/FeaturedContent/CarcassDisposal/PDF%20Files/CH%206%20-%20Alkaline%20Hydrolysis.pdf>