

Maryland's Green Death Care Options Act Questions & Answers (HB 1168/ SB 1028)

1. THE BASICS (WHAT & HOW)

What does this legislation do? The Green Death Care Options Act (HB 1168 / SB 1028) updates our state funeral laws by adding two (2) proven eco-friendly death care options for Maryland families and consumers:

- **Alkaline hydrolysis (A/H) and**
- **Natural organic reduction (NOR).**

The bill legalizes both methods as alternatives to conventional cremation and burial, and specifies a framework for regulation by the state agencies that currently oversee our death care.

What is “alkaline hydrolysis” and how does it work? Alkaline hydrolysis is often called “water cremation,” “flameless cremation” or “Aquamation®” because, instead of incineration, it reduces a body using 95% hot water and 5% alkaline chemicals to produce ashes that are returned to the family. The process employs a stainless-steel vessel with computerized control systems and handling equipment to manage the chemical solution that’s heated with electricity to reach 200-300° F. Typically, about 4 to 12 hours after introducing a body, A/H decomposes everything inside the vessel except inorganic material (*i.e.*, everything except bones, implants), leaving only the calcium from the bones and a sterile liquid effluent that is mostly water and totally safe for a recycling process.

What is “natural organic reduction” and how does it work? NOR gently transforms human remains into soil in 4-6 weeks. The process also uses a large vessel to hold human remains that are combined with straw, wood chips, and other natural materials. The natural decomposing process creates heat of over 131°F, which kills viruses, bacteria, and pathogens, and exceeds EPA requirements for heavy metals, which are stabilized in the soil, not volatilized. The resulting soil is safe for ornamental gardens, trees and scattering.

2. MORE ABOUT ALKALINE HYDROLYSIS (A/H)

Is A/H being used anywhere else? Yes. More than 20 states have legalized alkaline hydrolysis and some Maryland families hire funeral homes in North Carolina to procure the service. Until a recent opinion by Maryland’s Office of the Attorney General ([108 OAG 121](#)), dozens of national death care groups, experts and lawyers thought it was already legal in Maryland.

Is it safe? Yes. The US Trademark Office issued the first patent for this process in 1888. More recently, a 2019 validation study by NIH showed the combination of water, heat and chemicals deployed for A/H is an extremely effective method of sterilizing human infectious agents and breaking-down tissue.

What are the benefits of A/H?

- The primary benefit is the ability to offer Maryland consumers **additional options after death**.
- A/H **uses about 90% less energy than flame-based cremation**, which cuts fossil fuel and other GHG emissions, consistent with Maryland’s Climate Pathway goals.

Is there a demand? Yes. Surveys show that 64% of Americans consistently express an interest in green funeral options, and favorable testimony last year suggests that consumers and funeral providers in Maryland have the same interests.

Has it been tested and validated scientifically? Yes. For example, a 2019 report by NIH demonstrated a “[c]omplete inactivation of [*G stearothermophilus* and *B thuringiensis*] spores and digestion

of animal tissue” leaving “[n]o peptide fragments larger than 2500 Da [retained] in the effluent.” That study concludes the process “exceeded the...sterility requirements for animal biosafety level–3 and –4 facilities [and] validated destruction of prion-sized particles.” As indicated above, A/H is an exceptionally effective method of sterilizing human infectious agents and breaking-down tissue.

Where would A/H facilities be located? In other states and countries, equipment for A/H is installed inside of funeral homes, crematories and cemeteries. In Maryland, after licensing by the proper state agency, those businesses could locate in commercial spaces only after meeting local zoning and permit requirements. At the same time, with no emissions from combustion, air pollution permits are not required.

What happens to the ashes? Although A/H leaves about 20-30% more ashes because nothing is incinerated, a family is free to handle them in the same ways as conventional cremated remains. For example, they may decide to scatter the ashes according to existing laws, inurn them in a columbarium niche at a cemetery, bury them in a grave or compress them into memorial stones.

What happens to the byproducts? For a conventional crematory, a smokestack emits biproducts that include greenhouse gases (including CO₂), mercury, volatile organic compounds, particulate matter and fine dust. With A/H, besides prosthetic joints, pacemakers or other inorganic medical devices implanted in a body, the process yields a biproduct which the Cremation Association of North America describes as:

“a neutral liquid called effluent [that’s] sterile, and contains salts, sugars, amino acids and peptides [normally] discharged with all other wastewater, and is a welcome addition to the water systems.”

Is it suitable for every situation? Yes (pretty much). With appropriate personal safety measures, A/H can be used to cremate remains even after embalming or with risky diseases because the process is so proven at destroying pathogens and reducing chemical compounds to innocuous components.

How would regulation work under the bill? The bill piggy-backs on the existing regulatory process for crematories by authorizing the Board of Morticians and Funeral Directors (BOMFD) and Maryland Office of Cemetery Oversight (OCO) to permit crematories to offer A/H, conventional cremation, or both. Although different equipment is involved in the process, the requirements for authorization, chain-of-custody record keeping and the proper respect for remains are almost identical. The same state agencies would share responsibility to promulgate regulations, and for their inspection and enforcement.

3. MORE ABOUT NATURAL ORGANIC REDUCTION (NOR)

Is Natural Organic Reduction used anywhere else? Yes. Seven states have legalized the process: Washington (2019), Colorado (2021), Oregon (2021), Vermont (2022), California (2022), New York (2022) and Nevada (2023). Several other states currently have legislation pending to authorize NOR, including the bill passed last month by Delaware’s House of Representatives. Maryland is behind the curve.

Is it safe? Yes. The process kills most ordinary bacteria and viruses, including COVID-19, for example.

Does it smell? The NOR process does not smell. Microorganisms present in the process break down odorous gases into water and CO₂. In addition, biofilters and mechanical ventilation are used to aerate the process and ensure that no trace of odor is emitted.

Has NOR been tested and validated scientifically? Yes. Research at Western Carolina University and Washington State University (WSU) has demonstrated the viability of NOR as a natural method for the disposition of human remains, and WSU’s Soil Science Department conducted a pilot study which proved the safety and efficacy of the process. Long before it was ever applied to human bodies, farmers also safely used mortality composting and universities have tested it exhaustively.

What are the benefits of NOR?

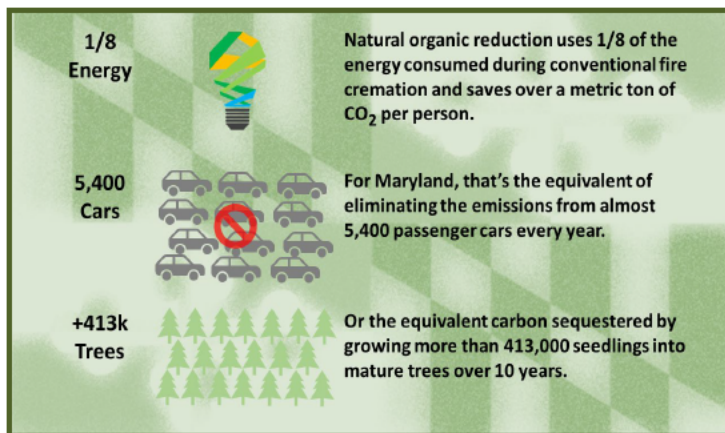
- The primary benefit is the ability to offer consumers **additional options after death**.
- With significant **savings in fossil fuel emissions and land use**, NOR addresses the increasing demand for more sustainable alternatives.

Is there a demand for NOR? Yes.

Nearly 2/3rds of Americans (64%)

consistently express an interest in green burial options, indicating a need for sustainable and affordable alternatives.

Hundreds of customers prepaid funeral homes for NOR in the State of Washington, starting even before the process was legalized.



What happens to the soil after NOR? Much like the choices people have with cremated remains, with appropriate owner's consent, families will choose the best place for resting the soil created in this process. They might choose to plant a tree or garden, for example, in a special family plot. After several suggestions, however, this bill expressly **prohibits** selling any NOR soil or using it to grow food for humans or livestock.

Where would NOR facilities be located? Facilities meeting state permitting and licensing requirements could be located anywhere in Maryland where the local zoning allows it.

Is NOR suitable for every situation? No. Remains that have been embalmed are not viable candidates for NOR because the chemicals involved will delay the decomposition process. Also, NOR is not indicated in cases that involve Ebola, prion or other risky diseases. This bill expressly **prohibits** the use of NOR in those cases and other situations where public health officials indicate it would be inappropriate.

What happens to heavy metals like mercury? NOR helps to ensure that mercury remains stabilized in the soil, rather than being volatilized. (Volatilized mercury from cremation accounts for a significant amount of mercury released into the atmosphere.) Research by WSU showed that, heavy metals in the soil reduced by NOR, including arsenic, cadmium, copper, zinc, lead, and mercury, were all well under EPA limits.

What happens to pharmaceuticals? Because current funeral practices are not required to account for drug concentrations, very little is known about pharmaceutical agents in human cadavers. However, it is known that most medications are metabolized or excreted from the body within a few hours after ingestion, so concentrations in cadavers are likely low. Unlike cremation and burial, NOR breaks down many of the pharmaceuticals that do remain in the body after death. The research completed to date showed a 95% reduction of tracked pharmaceuticals.

How would NOR regulations work under the bill? The bill creates a separate category of funeral disposition for NOR that mirrors the existing framework for cremation. Specifically, just like cremation, the BOMFD and OCO would jointly promulgate new regulations, establish minimum training requirements, oversee licensing or permitting NOR facilities under their respective jurisdictions, as well as inspect and enforce rules to protect the public. In particular, even though different equipment and processing of the body are involved in NOR, the bill anticipates comparable requirements for authorizing NOR, chain-of-custody and record keeping for the process, as well as due respect for remains being processed.

4. MORE ABOUT THE BILL

What about the existing funeral industry? The bill is good for the industry. It gives crematories and funeral homes new options and it was developed with extensive input from the Maryland’s Board of Morticians and Funeral Directors (BOMFD), the Maryland State Funeral Directors Association (MSFDA) and Office of Cemetery Oversight (OCO). In fact, the BOMFD recommended that the bill add legalization for alkaline hydrolysis in addition to NOR. With growing consumer interest in sustainable alternatives, this legislation simply provides another opportunity for existing businesses to expand their scope of services.

Are any Maryland funeral homes planning to offer A/H or NOR? Yes. Green Legacy is a local start-up co-founded by a licensed mortician who’s supporting the bill. The company is planning to launch a full-service funeral home in Montgomery County that will earn Green Burial Council certification. After licensing, Green Legacy says it will become Maryland’s first provider to specialize in Aquamation®, NOR and other funeral care options that are “radically compassionate.” Other industry participants from inside and outside Maryland have also expressed similar support for the bill and interests in providing these new options in our state.

Will there be any fiscal impact? No. Last year, DLS scored a bill for NOR with a zero-fiscal impact because BOMFD and OCO could promulgate new regulations with existing resources. Based on the experience for NOR in Washington State and an estimate provided to OCO by an equipment manufacturer, after new regulations are in place, Green Legacy thinks it’s highly unlikely that more half-a-dozen new A/H or NOR facilities would come online within the first three to five years after enactment. For that reason, the added demand for inspection and enforcement should be negligible.

Is there any value in waiting for further study or research? Why should Maryland fall behind other states? Alkaline hydrolysis has been in active use in more than 20 other states for many years. NOR was developed from applied science and principles of urban planning, supported by research studies carried out over the past ten years. Since 2019, NOR has blossomed into accepted funerary practice – it was even featured last year by the National Association Funeral Directors (NFDA) as part of its “Cremation Success” seminar. Seven other states have already adopted laws to legalize NOR – and Delaware is poised to do so – because it gives families and funeral businesses more options. There’s no good reason to wait.

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Access to bills online:

- [HB 1168 – Green Death Care Options Act](#)
- [SB 1028 – Green Death Care Options Act](#)

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