## HEALTH

**BOARD OF MORTICIANS – HEALTH OCCUPATIONS – CREMATION – WHETHER THE BOARD OF MORTICIANS AND OFFICE OF CEMETERY OVERSIGHT HAVE AUTHORITY UNDER EXISTING LAW TO LICENSE ALKALINE HYDROLYSIS AS A TYPE OF CREMATION TO DISPOSE OF HUMAN REMAINS**

December 21, 2023

*The Honorable Anne R. Kaiser*
*The Maryland House of Delegates*

State law requires two funerary agencies—the Board of Morticians and Funeral Directors ("Board of Morticians") and the Office of Cemetery Oversight ("Cemetery Office")—to regulate and license facilities in which human bodies are disposed of by cremation. You have asked whether the existing statutory authority of these agencies over cremation services also grants them the authority to regulate and license the use of an alternative technology called alkaline hydrolysis to dispose of human bodies.

For the reasons that follow, we conclude that the disposal of a human body by alkaline hydrolysis is generally illegal in Maryland and that the funerary agencies therefore do not have authority to regulate, license, or otherwise permit the use of this technology. The Health-General Article prohibits the disposal of human bodies except by certain enumerated methods. Alkaline hydrolysis is not one of the enumerated methods. And while the funerary agencies have a statutory responsibility to regulate "cremation," their governing statutes define "cremation" in a way that excludes alkaline hydrolysis.[1]

[1] We received two sets of comments on this opinion request, both in support of the legality of alkaline hydrolysis under current State law. Letter from Chris Palmer, Vice President, Funeral Consumers Alliance of Maryland and Environs, et al., to Patrick B. Hughes, Chief Counsel for Opinions & Advice (Dec. 1, 2023) ("FCAME Comments"); Letter from Adrian R. Gardner, Co-Founder, Green Legacy Brands LLC, to Patrick B. Hughes, Chief Counsel for Opinions & Advice (Dec. 1, 2023) ("Green Legacy Comments"). We thank the commenters for their views, which we have considered carefully.

## I
## Background

Alkaline hydrolysis, sometimes called "liquid cremation" or "aquamation," reduces a dead body to bone fragments by dissolving it in a solution of water and alkaline chemicals. *See* Cremation Ass'n of N. Am., *Alkaline Hydrolysis*, https://www.cremationassociation.org/page/alkalinehydrolysis (last visited Dec. 19, 2023) ("CANA Alkaline Hydrolysis Page"); Philip R. Olson, *Flush and Bone: Funeralizing Alkaline Hydrolysis in the United States*, 39 Sci., Tech., & Human Values 666, 667-68 (2014). The body is placed into an airtight chamber with this liquid solution. To speed up the process by which the chemicals dissolve the body, pressure and heat—in the range of 200 to 300 degrees Fahrenheit—are typically applied to the contents of the chamber. CANA Alkaline Hydrolysis Page; H. Leon Thacker, *Alkaline Hydrolysis* 1, *in* Nat'l Agric. Biosecurity Ctr. Consortium, *Carcass Disposal: A Comprehensive Review* (2004).

The process takes anywhere from three to sixteen hours, depending on the amount of heat and pressure used. CANA Alkaline Hydrolysis Page; Olson, *supra*, at 668, 686. The dissolution process yields a substantial amount of liquid that is commonly referred to in technical literature as a "sterile effluent" and that is typically discharged into wastewater systems. Olson, *supra*, at 667-68; Thacker, *supra*, at 1; CANA Alkaline Hydrolysis Page. The bone fragments that remain after the process is complete are pulverized with a device called a cremulator and returned to the next of kin in an urn. Kent Hansen, *Choosing to Be Flushed Away*, 5 Est. Plan. & Community Prop. L.J. 145, 150 (2012); CANA Alkaline Hydrolysis Page. Alkaline hydrolysis is often described as an "environmentally friendly" method of disposing of human remains. CANA Alkaline Hydrolysis Page. It does not emit pollutants into the air, and it uses less energy and produces less carbon than burial or traditional cremation. *Id*.; *cf*. Olson, *supra*, at 678-79 (analyzing the environmental and public health impacts of alkaline hydrolysis).

By contrast, in the traditional cremation process—sometimes called "flame-based" cremation—the body is incinerated. Cremation Ass'n of N. Am., *Cremation Process*, https://www.cremationassociation.org/page/CremationProcess (last visited Dec. 19, 2023) ("CANA Cremation Process Page") ("Flame-based cremation uses flame and heat to reduce the human remains to bone fragments, or cremated remains."). This traditional process uses temperatures of between 1400 to 1800

degrees Fahrenheit. *Id*. (putting the temperature at "between 1400 and 1600 degrees"); Natalie Banta Lynner, *Death in a Pandemic*, 70 UCLA L. Rev. 154, 185 (2023) (putting it at 1800 degrees). Unlike alkaline hydrolysis, traditional cremation produces air emissions because it converts the body's fat and tissues into gases rather than liquids. CANA Cremation Process Page ("The process of [flame-based] cremation is essentially the conversion of a solid to a gas."); Lynner, *supra*, at 185.[2] As with alkaline hydrolysis, traditional cremation results in bone fragments that are pulverized and then placed in an urn. CANA Cremation Process Page.

Traditional cremation for human remains has long been in widespread commercial use and has grown in popularity in recent decades. *See* Revised Fiscal & Policy Note, H.B. 995, 2010 Leg., Reg. Sess. at 4. Alkaline hydrolysis, on the other hand, is still an emerging technology in the funeral industry. As far as we know, no facility of any type in Maryland currently uses it for human remains. In the United States, the process was first used by the funeral industry only in 2011—in Ohio and Florida—although it had previously been used on farms (for animal remains) and at some universities and hospitals (for human bodies donated to science). CANA Alkaline Hydrolysis Page. Today, nationwide, the process is offered by about thirty funeral services providers in fifteen states, according to the Cremation Association of North America ("Cremation Association"). *Id*.

The General Assembly, so far as we are aware, has never considered legislation to explicitly address the legal status of alkaline hydrolysis in Maryland. The Legislature has, in recent years, considered bills about other emerging methods for breaking down a human body. One unenacted bill would have legalized "natural organic reduction," a method that involves the "controlled, accelerated conversion of human remains to soil." *See* H.B. 1060, 2023 Leg., Reg. Sess. (Senate First Reader). Another unenacted bill would have explicitly authorized State agencies to license and

[2] Because of these air emissions, traditional crematories require not only the approval of one of the funerary agencies (the Board of Morticians or the Cemetery Office), but also that of the Maryland Department of the Environment. *See Kor-Ko Ltd. v. Maryland Dep't of Envir.*, 451 Md. 401, 413 (2017). Although alkaline hydrolysis does not produce air emissions, the wastewater discharges it causes would similarly require the approval of federal, State, or local environmental regulators (depending on the type of discharge) if the technology were otherwise legal. *See generally* Maryland Dep't of Envir., Wastewater Permits Program, https://mde.maryland.gov/programs/water/wwp/pages/index.aspx (last visited Dec. 19, 2023).

regulate "cold cremation," which is the "process of reducing human remains to fragments through deep freezing." *See* H.B. 872, 2012 Leg., Reg. Sess. (First Reader). But the only legislative proposal we have found that mentions alkaline hydrolysis is an unenacted bill from the 2023 session that would have required a group of State agencies to study certain funeral practices, including alkaline hydrolysis and natural organic reduction. H.B. 869, 2023 Leg., Reg. Sess. (Senate Third Reader).

## II
## Analysis

Your question implicates various State statutes governing the disposition of human bodies. In interpreting these statutes, we seek to determine the intent of the General Assembly by examining the plain meaning of the statutory text in proper context, along with relevant legislative history and other indicators of legislative intent. *See, e.g.*, 108 *Opinions of the Attorney General* 108, 111 (2023); 108 *Opinions of the Attorney General* 81, 92 (2023). For several reasons, our statutory analysis leads us to conclude that, under current law, alkaline hydrolysis is generally illegal in Maryland and that the Board of Morticians and the Cemetery Office therefore do not have authority to license it.[3]

To begin, a section of the Health-General Article prohibits the disposal of a human body except through certain specified means, and those means do not include alkaline hydrolysis. Md. Code Ann., Health-Gen. ("HG") § 5-514. That section provides as follows:

> (a) An individual may not bury or dispose of a body except:
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> (1) In a family burial plot or other area allowed by a local ordinance;
>
> (2) In a crematory;
>
> (3) In a cemetery;
>
> (4) By donating the body to medical science; or

[3] In a March 2023 advice letter to you, the unit of our Office that represents the General Assembly reached the opposite conclusion. Having had occasion to thoroughly reconsider the issue in response to your request for an official opinion, we disagree with the conclusion in that letter and decline to follow it here.

> (5) By removing the body to another state for final disposition in accordance with the laws of the other state.
>
> (b) An individual who violates this section is guilty of a misdemeanor and on conviction is subject to imprisonment not exceeding 1 year or a fine not exceeding $5,000 or both.

*Id.*

Although disposal "in a crematory" is listed as one of the permissible means of disposal, the term is defined under the statute in a way that excludes alkaline hydrolysis. More specifically, a "crematory" is defined as "a building in which cremations are performed," HG § 5-508(d), and cremation, in turn, is defined as "the disposition of a dead human body *by means of incineration*," *id*. § 5-508(c) (emphasis added). In summary, then, § 5-514 makes it a misdemeanor for any individual to dispose of a human body except in one of five enumerated ways that include cremation by incineration but not alkaline hydrolysis, which does not use incineration. *See Incinerate*, *Merriam-Webster Dictionary*, https://www.merriam-webster.com/dictionary/incinerate (last visited Dec. 19, 2023) ("to cause to burn to ashes"). Alkaline hydrolysis is therefore illegal under § 5-514.[4]

One might argue that this provision governs only the *location* of a body's disposition, not the process used to dispose of the body. Under this argument, alkaline hydrolysis would be legal so long as it occurs inside a building in which cremations by incineration also occur (or, by the same reasoning, on the grounds of a cemetery or family burial plot). *See* HG § 5-514(a).

[4] We note that § 5-514 does not purport to govern the disposition of a body beyond the point that it is donated to medical science. Because your question concerns the regulatory authority of the Board of Morticians and the Cemetery Office, and because these agencies generally do not regulate institutions of medical science, we have no occasion here to consider whether such institutions may dispose of bodies with alkaline hydrolysis in Maryland. *See* Md. Code Ann., Health Occ. § 7-101 (t), (u) (defining the practice of funeral direction and mortuary science to include the act of making final disposition of a human body, but only for compensation), § 7-102(b)(2)(iii) (exempting any crematory at "a licensed medical facility or educational institution" from the jurisdiction of the Board of Morticians); Md. Code Ann., Bus. Reg. § 5-102(b)(3) (same exemption for the jurisdiction of the Cemetery Office).

That interpretation, however, would not be consistent with the broader statutory scheme. The Health-General Article treats cremation as a way to accomplish the "disposition of a dead human body." HG § 5-508(c); *id*. § 5-508(b) (referring to cremation as a method of "final disposition"). Given this language, we think it clear that when § 5-514 makes it a crime to "bury or dispose of a body" by unenumerated means, it refers to the processes by which a body may be broken down as well as the locations where a body may be left. *See Lockett v. Blue Ocean Bristol, LLC*, 446 Md. 397, 422 (2016) ("When a word susceptible of more than one meaning is repeated in the same statute or sections of a statute, it is presumed that it is used in the same sense." (quoting *Whack v. State*, 338 Md. 665, 673 (1995) (alteration omitted))). Means of disposal that are not enumerated in § 5-514 would thus require legislation to become legal. *Cf.* H.B. 1060, 2023 Leg., Reg. Sess. (Senate First Reader) (unenacted legislation that, in order to legalize natural organic reduction, would have added it to the definition of cremation that applies to HG § 5-514).

More generally, reading § 5-514 to govern only the location of a body's disposition would produce unusual consequences. First, this reading would tether the use of emerging funerary practices to the use of traditional practices in a way that the General Assembly probably did not intend. Specifically, the statute would prohibit funeral services providers from using emerging or experimental methods to dispose of bodies unless they employed such methods in a building where they also happen to incinerate bodies or on the site of cemetery. Put differently, a provider wishing to offer alkaline hydrolysis would have to offer a traditional method of disposition in the same location. Second, pursuant to this reading, wrongdoers could dump bodies illicitly (a practice that, as discussed next, the General Assembly clearly sought to outlaw) without running afoul of the statute, so long as they did so at cemeteries or crematories. We find these consequences of the location-based reading illogical. *See Smith v. State*, 425 Md. 292, 299 (2012) ("In every case, a statute must be given 'a reasonable interpretation, not one that is absurd, illogical, or incompatible with common sense.'" (quoting *Robinson v. Baltimore Police Dep't*, 424 Md. 41, 51 (2011)). We think instead that § 5-514 makes cremation by incineration a legal method of disposition but does not extend that treatment to alkaline hydrolysis or other emerging processes by which a body may be broken down.

The legislative history of this provision does not alter our view of its plain meaning. The General Assembly enacted it only recently, in 2015, apparently in response to an incident in which a

body was dumped on the side of the road in Washington County. 2015 Md. Laws, ch. 419; *Hearing on H.B. 431 Before the House Health & Gov't Operations Comm.*, 2015 Leg., Reg. Sess. (Feb. 24, 2015) (written testimony of victim's family). That incident laid bare to the General Assembly that Maryland law did not contain any general prohibition of the improper disposal of a body. *See* Revised Fiscal & Policy Note, H.B. 431, 2015 Leg., Reg. Sess. at 1-2. It is true that the acute concern that appears to have motivated the legislation—the need to outlaw body dumping—is not directly related to alternative methods of cremation. Nonetheless, the law that the General Assembly enacted does not narrowly outlaw body dumping. Instead, by its plain language, it writes a broader limitation into State law: It states that there are only five legal ways to "bury or dispose of" a body in Maryland. HG § 5-514(a). In light of that plain language—which reaches beyond the acute legislative concern with body dumping but is by no means inconsistent with it—unenumerated methods of disposition, including alkaline hydrolysis, are prohibited. *See State v. Bey*, 452 Md. 255, 265 (2017) (in interpreting a statute, courts consider the statutory text in the context of "the purpose, aim, or policy of the Legislature" but generally do not "add [or] delete language so as to reflect an intent not evidenced in the plain and unambiguous language of the statute" (quoting *State v. Johnson*, 415 Md. 413, 421-22 (2010))).

It is also true that the definition of "cremation" that applies to HG § 5-514 and equates the term with incineration was originally enacted in legislation with a different primary purpose. Specifically, the General Assembly enacted the definition in 1994 in an act that created procedures for private cremation decisions. 1994 Md. Laws, ch. 517. Among other things, the legislation established a priority order of family members and other individuals with authority to choose cremation for the deceased. *Id*. As such, when the General Assembly crafted the "incineration" definition, it did so as part of an effort to resolve "differences and disputes" over cremation decisions—not in an effort to prohibit other forms of disposition. *See id*. (Preamble).

Nonetheless, the 1994 legislation made the definition applicable to an entire subtitle: Subtitle 5 of Title 5 of the Health General Article. *Id.* That subtitle already included other types of requirements about cremation. *See, e.g.*, *id*. (making conforming amendments to HG § 5-502, which already prohibited the cremation of an unidentified body); HG § 5-503 (added in 1982 and providing that a "person may not cremate a body until at least 12 hours after death"); *id.* § 5-504 (added in 1982 and providing

that a "person may not transport a body to a crematory without using a cot and pouch or receptacle"). Subsequently, the General Assembly enacted still other types of rules about cremation into the same subtitle without amending the "incineration" definition. *See* 2012 Md. Laws, ch. 500 (imposing storage and transportation requirements on crematories and funeral establishments). As a result, the definition applies generally to a range of rules about cremation and crematories—not only to the rules enacted in 1994 about decision-making. Most importantly for our purposes, when the Legislature enacted the prohibition on unenumerated methods of disposition in 2015 and added it to Subtitle 5 as § 5-514, it used a defined term ("crematory") and did not amend the definition (that a crematory is a place where cremations by "means of incineration" are performed). 2015 Md. Laws, ch. 419; HG § 5-508(c)-(d). We must presume that the General Assembly understood and intended that this definition would apply to § 5-514 and would exempt only cremation by incineration from the statute's prohibition. *See State v. Neiswanger Mgmt. Servs., LLC*, 457 Md. 441, 476 (2018) ("We presume the Legislature was aware of its own laws.").

We recognize that, outside of the Health-General Article, Maryland law also contains a different—and arguably broader—definition of "cremation." That definition appears in the provisions of the Health Occupations Article and the Business Regulation Article that require the Board of Morticians and the Cemetery Office to regulate crematories. Md. Code Ann., Health Occ. ("HO") §§ 7-101(h), 7-205(c); Md. Code Ann., Bus. Reg. ("BR") §§ 5-101(e), 5-204(a)(2).[5] These occupational statutes state that cremation "means the process of reducing human remains to bone fragments through intense heat and evaporation, including any mechanical or thermal process." HO § 7-101(h); BR § 5-101(e).

It is admittedly odd that the occupational statutes and the Health-General Article define cremation differently, especially given that the definitions have overlapping implications in that they both apply to statutes that govern the safe and fair operation of crematories. *Compare* HO § 7-205(c) (requiring the Board of Morticians to create "a process for regulating crematories" and to ensure that crematories are operated in conformity with "public health and safety") *and* BR § 5-204(a)(2) (same requirements for the Cemetery Office), *with* HG § 5-503 (12-hour time restriction

[5] Each agency regulates those crematories in which its licensees—morticians and funeral directors in the case of the Board, cemeterians in the case of the Cemetery Office—hold primary ownership, while the Cemetery Office also regulates independent crematories. BR § 5-102(b)(2); HO § 7-102(b)(2)(ii).

for cremation), *and* HG § 5-505 ("[A] person may not require that a cremation be performed with a casket."). The General Assembly enacted the definition in the occupational statutes in 2010, sixteen years after it enacted the Health-General definition. 2010 Md. Laws, ch. 450; 1994 Md. Laws, ch. 517. It seems likely that the General Assembly based the 2010 definition on a model provision that the International Cemetery, Cremation & Funeral Association ("ICCFA"), a trade group, published in 1998. *See* ICCFA, *Glossary of Terms*, https://iccfa.com/blog/glossary-of-terms/ (last visited Dec. 19, 2023) ("ICCFA Glossary").[6] Though not an exact match, this model definition contains two of the same key phrases—"reducing human remains to bone fragments through intense heat and evaporation" and "mechanical and thermal process"—as the definition that the General Assembly enacted in 2010. *Compare id.*, *with* HO § 7-101(h), *and* BR § 5-101(e).[7] Thus, as far as we can tell, the General Assembly appears to have deviated from the Health-General definition in 2010 in order to follow a model definition that did not exist when the Health-General definition was enacted. We are not absolutely certain of this explanation, however, because the legislative history of the 2010 law does not mention the source of the definition it enacted nor otherwise address why the General Assembly chose to deviate from the Health-General definition without amending it.

In any event, this peculiarity does not affect the answer to your question. Although the definition in the occupational statutes does not explicitly equate cremation with "incineration," it still excludes alkaline hydrolysis. Under the newer definition, cremation must employ both "intense heat and evaporation" to "reduc[e] human remains to bone fragments." HO § 7-101(h); BR § 5-101(e). Unlike traditional flame-based cremation, alkaline hydrolysis does not employ evaporation for this purpose. It does not, in other words, convert anything in the body to gas or vapor when reducing it to bone fragments. *See Evaporation*, *Merriam-Webster's Dictionary*, https://

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[6] In full, the ICCFA definition of cremation reads as follows: "The irreversible process of reducing human remains to bone fragments through intense heat and evaporation, in a specifically designed furnace or retort, which may include any other mechanical or thermal process whereby the bone fragments are pulverized, or otherwise further reduced in size or quantity. Cremation is a process and is not a method of final disposition." *Id.* The Glossary in which this definition appears forms part of the ICCFA's "model guidelines for state laws and regulations." ICCFA, *Model Guidelines*, https://iccfa.com/model-guidelines/; *see* Hansen, *supra*, at 168.

[7] The laws of at least two other states follow the ICCFA definition closely. *See* N.M. Stat. Ann. § 58-17-3H; Ala. Code § 27-17A-2(20).

www.merriam-webster.com/dictionary/evaporation (last visited Dec. 19, 2023) ("change from a liquid to a vapor"); CANA Cremation Process Page (explaining that in flame-based cremation, "[t]issue, organs, body fat, and casket or other container materials burn off as gases"). Instead, alkaline hydrolysis does the opposite; it converts most of the body into a liquid, producing a "sterile effluent" that must be handled as wastewater and leaving a remnant of bones as the only remaining solid material. Olson, *supra*, at 667. The technology produces no air emissions. Thacker, *supra*, at 1.

To be sure, we claim no scientific expertise, and we would typically hesitate to base a statutory interpretation on a point of science. In this instance, however, we think it clear that alkaline hydrolysis does not, in fact, employ evaporation to break down the body to bone fragments. The technology works by dissolving human remains into a liquid, not by converting remains into gas or vapor. CANA Alkaline Hydrolysis Page ("Just like flame cremation, [in alkaline hydrolysis] fat and tissues are converted to basic organic compounds. In flame cremation these harmless compounds, mainly carbon dioxide and water vapor, are released into the air. In alkaline hydrolysis, the harmless compounds formed include salts and amino acids, and are released with the water."). Indeed, the only argument we have encountered about the use of evaporation in alkaline hydrolysis concerns the treatment of the remaining bone fragments *after* the body has been dissolved, not the dissolution process itself. The argument is that, after the alkaline hydrolysis process has reduced the body to bone fragments, the fragments are typically dried before being pulverized. This drying of the fragments, it is contended, involves evaporation. FCAME Comments at 4; Green Legacy Comments at 5. We assume this contention is correct. Even so, the incidental use of evaporation at this stage to remove the "sterile effluent" from the bone fragments does not bring alkaline hydrolysis within the definition of the occupational statutes because, by this point, the body has already been reduced to bone fragments. *See* HO § 7-101(h); BR § 5-101(e). In other words, any evaporation that occurs in the drying of the bone fragments after the rest of the body has been dissolved into liquid does not form part of the process by which alkaline hydrolysis "reduc[es] human remains to bone fragments." HO § 7-101(h); BR § 5-101(e). That is important because the statutory definition specifically requires that evaporation be used to "reduc[e] [the] remains to bone fragments," not just at any point in the process. *Id.*

We also have questions about whether alkaline hydrolysis may be said to employ "intense heat" within the meaning of this

definition. As explained above, the procedure for traditional cremation reaches temperatures of between 1400 and 1800 degrees Fahrenheit, whereas alkaline hydrolysis generally reaches temperatures of only 200 to 300 degrees Fahrenheit. *See* Part I, *supra*. We are not sure that a specialized mechanical process that employs only the level of heat of a standard household appliance can be described as using "intense heat," especially given that the phrase manifestly covers the much higher temperatures of traditional cremation. *See, e.g.*, *Rowe v. Maryland Comm'n on Civil Rights*, 483 Md. 329, 342 (2023) (statutory terms must be read in context). Ultimately, however, we need not reach a firm conclusion on that point. Because alkaline hydrolysis does not employ evaporation to reduce the body to bone fragments, it does not meet the definition of "cremation" in the occupational statutes for that reason alone. *See* HO § 7-101(h); BR § 5-101(e).

Granted, the definition in the occupational statutes also contains the broad phrase "including any mechanical or thermal process." HO § 7-101(h); BR § 5-101(e). This phrase, appended to the end of the definition, apparently has led some commentators to assume that alkaline hydrolysis is legal in Maryland. *See, e.g.*, CANA Alkaline Hydrolysis Page (categorizing Maryland as a state that has legalized the technology but lacks practitioners); Olson, *supra*, at 667 (same); Kantele Franko, *States Consider: Is It Legal to Dissolve Bodies?*, NBC News (June 2, 2011), https://www.nbcnews.com/id/wbna43257762 (stating that the 2010 legislation would allow alkaline hydrolysis). After all, alkaline hydrolysis is a "mechanical process" in the sense that it uses a machine, *see Mechanical*, *Merriam-Webster's Dictionary*, https://www.merriam-webster.com/dictionary/mechanical (last visited Dec. 19, 2023) ("of or relating to machinery . . . or tools"), and potentially a "thermal" process as well, in the sense that it uses some heat, *see Thermal*, *Merriam-Webster's Dictionary*, https://www.merriam-webster.com/dictionary/thermal (last visited Dec. 19, 2023) ("of, relating to, or caused by heat"). In addition, as already explained, the General Assembly chose to incorporate a definition with this broad phrase into the occupational statutes instead of using the pre-existing "incineration" definition from the Health-General Article. *See* 2010 Md. Laws, ch. 450. This somewhat mysterious choice may have caused confusion about the legal status of alkaline hydrolysis in Maryland by creating the impression that the General Assembly intended the broad "including" phrase in the new definition to encompass some alternative practices.

Yet we think it clear, as a matter of statutory interpretation, that this broad "including" phrase cannot be read to bring alkaline hydrolysis or any other process that does not employ evaporation to reduce the body to bone fragments within the sweep of the definition. Put simply, the "including" clause should not be interpreted to negate the definition's evaporation requirement. *See State v. Krikstan*, 483 Md. 43, 98 (2023) ("We avoid statutory interpretations that render language meaningless, surplusage, superfluous or nugatory." (internal quotation marks omitted)). State legislative resources expand upon this point. The definition in the occupational statutes is what is known as a composite definition because it contains a "means" clause followed by an "includes" or "including" clause. Department of Legislative Services, *Maryland Style Manual for Statutory Law* 35 (2018) ("DLS Manual");[8] *see also* Md. Code Ann., Gen. Provis. ("GP") § 1-110 (treating "includes" and "including" as synonymous terms). Under the General Assembly's practices, the "includes" clause in this type of definition does not expand or overwrite the "means" clause but instead merely illustrates its meaning. DLS Manual at 35; *see also* GP § 1-110 ("'Includes' or 'including' means includes or including *by way of illustration* and not by way of limitation." (emphasis added)).

As such, rather than read the phrase "including any mechanical or thermal process" to mean that a process may satisfy the definition even if it does not use "intense heat and evaporation," we must read it to mean that any "mechanical or thermal process" used as part of cremation is included within the scope of the definition so long as the overall process uses intense heat and evaporation to reduce the body to bone fragments. This means, for example, that the use of a cremulator to pulverize bone fragments remaining after the traditional, flame-based incineration of a body fits within the definition, because the overall process employs "intense heat and evaporation" to break down the body. HO § 7-101(h); BR § 5-101(e); *see also* ICCFA Glossary (clarifying that cremation "may include any other mechanical or thermal process *whereby the bone fragments are pulverized*" (emphasis added)).[9]

[8] The DLS Manual is a useful resource for understanding the General Assembly's drafting practices. *See, e.g., Elsberry v. Stanley Martin Cos.*, 482 Md. 159, 184 (2022) (relying on the manual in interpreting a statute). The Manual is available at https://dls.maryland.gov/pubs/prod/LegisBillDrafting/MarylandStyleManualforStatutoryLaw2018.pdf.

[9] The General Assembly's objective in including the phrase "any mechanical or thermal process" in this definition, and the ICCFA trade

But alkaline hydrolysis does not fit within the definition because it does not employ evaporation (and likely cannot be considered to employ intense heat) for this purpose.

The legislative history of the definition in the occupational statutes supports our reading of its plain language. The 1998 ICCFA model law on which this definition appears to be based was written thirteen years before alkaline hydrolysis went into use by the funeral industry anywhere in the country, *see* CANA Alkaline Hydrolysis Page, and for that historical reason presumably was not crafted to sweep in alkaline hydrolysis, *see* Hansen, *supra*, at 168 (citing the ICCFA definition as an example of a definition that excludes alkaline hydrolysis). And while we may not know with absolute certainty that the General Assembly based its own "intense heat and evaporation" definition on the ICCFA definition, we do know something else—the definition that the General Assembly ultimately enacted in 2010 appeared in nearly identical form in legislative proposals stretching back to 2001. *E.g.*, H.B. 906, 2001 Leg., Reg. Sess. (First Reader); S.B. 143, 2002 Leg., Reg. Sess. (First Reader); S.B. 484, 2003 Leg., Reg. Sess. (First Reader). So, as with the ICCFA definition, it appears that the General Assembly did not craft the definition for the specific purpose of encompassing alkaline hydrolysis. In 2001, alkaline hydrolysis for human remains was not in use by the funeral industry anywhere in the country and would not be for another ten years. CANA Alkaline Hydrolysis Page.

By contrast, we find it instructive to consider a definition of cremation that clearly does cover alkaline hydrolysis. In 2010, another trade group—the Cremation Association—updated the definition of cremation in its own model law for the specific purpose of bringing "processes like alkaline hydrolysis" within its scope. CANA Alkaline Hydrolysis Page; *see* FCAME Comments at 4 (discussing this update); Green Legacy Comments at 6 (same). Before this update, the Association's definition of cremation resembled the definition in Maryland's occupational statutes in an important sense—it specified that cremation worked "through heat

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group's objective in including a similar phrase in its model definition, may have been to clarify that agency regulatory authority extends to the pulverization of the bone fragments and is not limited to the incineration process itself. *See* HO §§ 7-101(h), 7-205(c); BR §§ 5-101(e), 5-204(a)(2) (requiring the Board of Morticians and the Cemetery Office to regulate cremation). Because the definition in the Health-General Article does not govern the scope of the funerary agencies' regulatory authority, it would make some sense that the phrase appears only in the definition in the occupational statutes.

and evaporation." Cremation Ass'n of N. Am., *Model Cremation Law and Explanation* 2 (2003) ("2003 CANA Model Law").[10] Tellingly, the Association dropped this phrase when crafting a definition to encompass alkaline hydrolysis. It opted instead to define cremation as follows: "The mechanical and/or thermal or other dissolution process that reduces human remains to bone fragments. Cremation includes the processing and usually includes the pulverization of the bone fragments." Cremation Ass'n of N. Am., *Model Cremation Law and Explanation* 3 (2017). This broad definition leaves no doubt that it covers alternatives to incineration, not least because of its intentional omission of any reference to heat and evaporation. *See id*.; Kan. Op. Att'y Gen. No. 2019-9, 2019 WL 6458254 at *2 (Nov. 26, 2019) (interpreting this definition, which Kansas enacted, to cover processes that separate "flesh from bone by the destruction of the flesh"). We think the history of this model definition reinforces the point that a definition intended to encompass alkaline hydrolysis would not logically require that cremation employ "intense heat and evaporation." HO § 7-101(h); BR § 5-101(e).

[10] This earlier version of the Cremation Association's model definition plainly focused on incineration. 2003 CANA Model Law, at 2 ("The technical process, *using direct flame and heat*, that reduces human remains to bone fragments. The reduction takes place through heat and evaporation. Cremation includes the processing and usually includes the pulverization of the bone fragments.") (emphasis added); *see also* Cremation Ass'n of N. Am., *Model Cremation Law and Explanation* (1999) (containing same definition of cremation as the 2003 version). The legislative history for the 2001 and 2002 Maryland bills suggests that they sought to follow the provisions of the Cremation Association's model law from this era. *Hearing on H.B. 906 Before the House Economic Matters Comm.*, 2001 Leg., Reg. Sess. (Mar. 7, 2001) (written testimony of the Cemetery Office) ("The Bill's content is reflective of the recommendations made by the Cremation Association . . . in its proposed model state cremation regulation."); *Hearing on S.B. 143 Before the Senate Finance Comm.*, 2002 Leg., Reg. Sess. (Feb. 7, 2002) (written testimony of Del. Cadden) ("As recommended by [the Cremation Association], enactment of this legislation would provide for uniform statutory provisions that would render protection to the public . . . ."). The definition of cremation that the bills contained, however, is not a close match for the Cremation Association language from that era, but instead mirrors parts of the ICCFA language. *See supra* notes 6 & 7 and accompanying text (quoting the ICCFA language and comparing it to the occupational statutes). In any event, neither model that the General Assembly may have followed—the pre-2010 Cremation Association definition or the ICCFA definition—accommodated alkaline hydrolysis. *See* Hansen, *supra*, at 168 (noting that the ICCFA definition excludes alkaline hydrolysis); 2003 CANA Model Law, at 2 (requiring "direct flame and heat").

More broadly, the legislative history of the Maryland bills containing the "intense heat and evaporation" definition, including the successful 2010 legislation, also does not evince any legislative interest in non-traditional forms of cremation. Instead, the historical materials reveal a keen focus on traditional cremation, which had not previously been subject to significant regulation or oversight. *See* Revised Fiscal & Policy Note, H.B. 995, 2010 Leg., Reg. Sess. at 3-4 (noting that in Maryland, as of the bill's introduction, cremation was "growing in popularity" but "minimally regulated"). To safeguard the public welfare, the General Assembly made the regulation of traditional crematories the explicit responsibility of the Board of Morticians and the Cemetery Office. *Id*. at 1; *see Hearing on S.B. 143 Before the Senate Finance Comm.*, 2002 Leg., Reg. Sess. (Feb. 7, 2002) (written testimony of CEO of Eternal Justice, a nonprofit) (describing abuses committed by an unregulated crematory in Georgia); Bill File on H.B. 906, 2001 Leg., Reg. Sess. (containing a newspaper article describing similar abuses at a crematory in California). Alkaline hydrolysis and other emerging techniques did not appear to factor into the legislative intent one way or the other.

To be clear, the conclusion that alkaline hydrolysis is not a form of cremation within the meaning of the occupational statutes is not particularly meaningful on its own. It simply means that the funerary agencies are not *required* to regulate the practice, *see* HO § 7-205(c) (mandating that the Board of Morticians regulate crematories); BR § 5-204 (same for the Cemetery Office), but it says nothing about whether they *may* regulate it as part of their broader authority to enforce laws governing the disposition of human bodies, *see, e.g.*, HO § 7-301(a) (providing that "an individual shall be licensed by the Board before the individual may practice mortuary science in this State"), nor whether their licensees may employ the technology under currently existing laws and regulations. Instead, it is HG § 5-514 that answers the latter two questions in the negative by prohibiting the use of alkaline hydrolysis on human remains in Maryland.[11]

## III
## Conclusion

Alkaline hydrolysis is considered by many to be an environmentally friendly alternative to traditional funeral practices, and it is legal in some other states. We express no view

[11] We do not decide here whether, in the absence of HG § 5-514, the Board of Morticians or the Cemetery Office could choose to authorize the practice.

on whether the practice should be authorized as a matter of policy. But, as Maryland law currently stands, we do not think that the Board of Morticians and the Cemetery Office have the power to authorize, license, or regulate this technology. The disposal of a human body by alkaline hydrolysis is generally illegal under § 5-514 of the Health-General Article and does not fall within the agencies' responsibility for regulating cremation under the Health Occupations and Business Regulation Articles.

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