



The Dodge Company

165 CambridgePark Drive

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Chicago • Los Angeles • Fort Worth • Portland • Toronto • Sydney • London • Wellington

June 7, 2010

Honaker Funeral Home  
ATTN: Kevin  
1751 Gause Blvd., W  
Slidell, LA 70469

Dear Kevin:

Your representative, George Gillum, asked that we send you information in regard to chemical and biological wastes which a funeral home might introduce into a sewer or septic system. We will try to give you as much information as possible on this subject, which is obviously important to all of us. While we believe that this information will serve as a useful reference, it is highly recommended that you check with your local and state authorities to verify the types and quantities of materials that can be put into your sewer or septic system.

As you know, embalming is a process of preservation of bodily remains by means of the injection of embalming chemicals. The only waste material involved in this process is the drainage fluid. The drainage material contains:

#### FROM THE BODY

1. Blood and Bodily Fluid: No matter whether there is little drainage or quite a bit, only the first few percent of that drainage would contain proteinaceous fluids that have not been denatured by the embalming chemicals which have come in contact with them. Virtually every embalming room has a drainage sink, usually a flush type (in which the drainage is held until it is discharged into the sewer system). The "first few percent of the drainage" would be treated in the waste sink by unreacted embalming chemical in the drainage. Proper sanitization of the sink would result in little likelihood of a health hazard or sewer system contamination. Also, these bodily fluids are biodegradable.

#### FROM EMBALMING CHEMICALS

2. Formaldehyde: Almost all formaldehyde is used up as the primary ingredient in the embalming procedure. The main purpose of embalming is to retain as much formaldehyde in the body as possible so as to inactivate enzymes and bacteria and react with the protein to harden it and preserve the body. There should not be more than approximately a 5-10% loss of unreacted injection chemicals in drainage from the body during embalming. This would involve approximately 20-40 grams (0.7-1.4 oz.) of formaldehyde per body. This small amount is further diluted by a factor of 10 or 12 to 1 by running water in the sink. This is then consumed by reaction with nitrogenous wastes (e.g. ammonia, urea, etc. from urine and other sources) normally contained in any waste disposal system. (See the enclosed list of equations attached to this letter for reactions of formaldehyde with certain nitrogenous wastes. See also a table, taken from Principles of Biochemistry by Emil Smith et al, which shows quantities of nitrogenous materials found in human urine which neutralize formaldehyde.)



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3. Alcohol: The maximum in drainage would be in the vicinity of 2-3 ml (0.07-0.10 oz.). Alcohols are biodegradable at various rates.
4. Surfactants: The linear alkyl sulfonates and nonionic surfactants contained in an embalming fluid, which aid in the penetration of fluid into the cells, are all biodegradable. Household sanitary waste from something like washing dishes in an automatic dishwasher is 100 times more concentrated (based on one ounce of detergent per wash load) than the amount that might be discharged through drainage.
5. Organic Dyes: This is also minimal. The maximum that might be emitted would be 1/100 of a gram if it had not already reacted histologically with the cells to create color under the body surface, which is its purpose.

A properly trained embalmer using our products will not be releasing any significant quantities of hazardous chemical into the wastewater stream. Incidentally, I realize that I have devoted a lot of space to chemicals. I have done that intentionally to avoid the impression that we have created a chemical hazard in attempting to eliminate a presumed biological hazard.

Finally, we're sending other enclosures to further substantiate our statement that blood drained from the dead body during the embalming process is disinfected before it enters the sewer system. First, there's a reprint of a paper written by Peter Burke and A.L. Sheffner that was published in the October 1976 issue of Health Laboratory Science. The paper describes a study conducted at George Washington School of Medicine entitled, "The Antimicrobial Activity of Embalming Chemicals and Topical Disinfectants on the Microbial Flora of Human Remains." The results of the study showed that the microbial population was reduced by greater than 99% two hours after the embalming.

The second item is an article from the June 1993 issue of The Forum, the newsletter put out by the New Jersey Funeral Directors Association. In it you'll see that the Ohio EPA, the U.S. Department of Health and Human Services, and the New Jersey Department of Environmental Protection and Energy all conclude that prep room discharge does not present a biological hazard. We're confident that your local water and public health officials will agree. Attached to the back of the New Jersey piece is the full text of the Ohio EPA article.

Finally, there's a copy of a summary of a study commissioned by NFDA in 2003 which "substantiates that funeral home discharges to septic and sewer systems do not jeopardize public health."

The Dodge Company has had inquiries from literally hundreds of local and state environmental departments over the past several decades. In each and every case, we've responded to those inquiries with the information contained in this letter. We know that the vast majority of recipients of this information have concluded after receiving this information that there was no further need to regulate funeral home wastes. In some instances, we've had no feedback after sending out this information. Perhaps in some few cases regulations were promulgated in spite of the facts listed here, but we have not heard of a single such instance. The last item I'll include is a copy of a letter from a funeral director in Florida who tells us that their utilities company inspector was going to use this material to help train their staff. You might want to show this letter, also, to anyone inspecting your funeral home's wastewater situation.

**Dodge**

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I hope that this outline is sufficient for your purposes in responding to any future questions the local authorities may ask of you regarding hazardous waste chemicals generated in the operation of a funeral home. If you should need further specific information, please don't hesitate to call. We will do our best to answer any questions that you might have.

Cordially,

A handwritten signature in black ink, appearing to read 'Sam Mirza', with a horizontal line underneath.

Sam Mirza, Research Director

A handwritten signature in black ink, appearing to read 'Debbie Dodge', written in a cursive style.

Debbie Dodge

Enclosures

c: George Gillum