



# **CHAMPION® Expanding Encyclopedia Of Mortuary Practices**

---

---

Number 629, 1998

## **DEHYDRATION IN EMBALMING: CAUSES, EFFECTS AND SOLUTIONS**

### **Part 1**

**By: James H. Bedino, Chemist/Dir. Research  
The Champion Company**

*ABSTRACT: The age old embalming problem of dehydration, both antemortem and postmortem is discussed and surveyed. Causes and their effects at various stages of the embalming process (including pre-embalming, embalming induced and post-embalming) are delineated and explained in depth and innovative solutions are proffered and discussed. Emphasis is placed on proper selection of chemicals used during embalming and avoidance of situations which hasten or accelerate the dehydration process in the embalmed body. Results of extensive field-testing and research are integrated into the discussion.*

**INTRODUCTION:** Dehydration is an age old problem in embalming that has vexed the performance of the art and science since it's inception. The proposed preventives and after cause solutions have been numerous and varied. Still the problem remains with the embalming profession and preservation industries in general - witness the implications in the leather and tanning industry alone where dehydrative effects are costly.

We receive an almost constant influx of questions from embalmers regarding dehydration and methods of prevention and control on a regular basis. Obviously, the problem exists in the real world of embalming and an in-depth discussion of causes, effects and solutions or controls is needed. Despite the advancements in training in general, the average graduate embalmer has only a rudimentary knowledge and training regarding dehydration and it's control. Most control measures are learned in the field and are decidedly out-dated and sometimes of anecdotal nature and not necessarily based on sound embalming science.

We, at Champion, have access to a vast resource of field-testing and research in general to assess the various causes of dehydration and prove the efficacy of various control and prevention measures in a realistic embalming environment. In the following pages, we will share that knowledge with you in a comprehensive manner to allow you to better solve the problems of dehydration that exist in everyday embalming scenarios.

---

---

Dehydration basically shows up in three distinct phases of body preparation: pre-embalming, embalming induced and post-embalming. All three phases have different causes with varying seriousness of effects and unique solutions or preventive methods. We will discuss each phase separately and offer remedies suitable to each particular phase and its ramifications.

**PRE-EMBALMING:** Even before the body is received at the mortuary, substantial dehydration effects can have already occurred due to the cause of death, the death process itself and the treatment provided the body prior to the embalmer having control of the body.

Some causes of death and dying processes (including antemortem treatments) contribute greatly to dehydration. These would include senile cases, bedridden patients, critical care recipients and extensively intravenously medicated bodies. In addition to typically low water intake and fluids in general, due to weakness and lack of appetite, diureses and general fever conditions contribute to a massive dehydration effect. Elevated body temperatures in general along with administration of antibiotics to control an infectious disease state, usually coupled with oxygen therapy also cause dehydration effects.

Many heart medications have concomitant diuretic or dehydrative effects that exacerbate the condition of the body after death. Radiation and generalized chemotherapy have a negative impact on the body's ability to properly control its fluid and electrolyte levels - usually to the detriment of the postmortem condition. These pre-existing conditions and causes cannot be controlled and are accepted by the embalmer as the starting point of the dehydration problem in embalming.

Certain physical causes, that occur shortly after death, that are also preventable, in most cases are still beyond the control of the embalmer. Refrigeration and freezing of bodies is invariably detrimental to bodies in general and accelerates dehydration processes in particular. Bodies that are stored in morgue coolers are subjected usually to strong air currents and are occasionally not sufficiently covered, with the result being significant dehydration. Even if the bodies are covered, the movement of a substantial volume of air over the surfaces in general contribute to major dehydration. The situation can actually be worsened if an absorptive sheet, instead of a plastic or impervious material alternative, is used to cover the body. This results in the cotton or absorptive sheet acting as a wick for moisture from the skin surfaces of the remains.

Some embalmers, due to time constraints or other reasons, voluntarily postpone embalming treatment. Dehydration is an ongoing process and the sooner embalming can occur the more likely the body will be adequately preserved, restored and sanitized with a minimum of dehydrative effects.

Some pre-embalming treatments by embalmers contribute to dehydration effects particularly of sensitive skin areas that are to be later cosmetized or viewed. The use of concentrated formaldehyde swabbing with accessory or cavity chemicals by cotton on the mouth, nose, ears and eyes should be avoided. This promotes surface dehydration of the very areas that you are striving for life-like and natural appearance of. The use of formaldehyde sprays that are high in alcohol are just as bad and are of dubious value disinfectant-wise in the first place. All they deliver is a false sense of security and dehydration of the areas applied to. Disinfection and sanitization are high-priority items and there are superior alternatives to the old-fashioned use of formaldehyde-based products. Highly reactive disinfectants that are dispersed by a water-based spray are

---

---

safer and much more effective — exerting a high level of sanitation on orifices and body surfaces.

During pre-embalming feature setting, avoid the use of cotton products in the orifices of the face as these cause a considerable amount of dehydration by wicking moisture from the underlying mucous membranes and contributing to surface dehydration of the skin areas of the face. A superior alternative is the use of embalmers putty or mastic compounds. Make certain that you choose a modern cartridge loaded putty that has moisturizing and emollient properties so that dehydration is not hastened by the absorptive nature of the putty itself. The older style mastic compounds are too difficult to use and had no humectants in the formulation and even added formaldehyde in some cases. The result was that significant dehydration was noted on bodies when the mastic hardened and dried in the body orifices with wicking of moisture from the sensitive facial and mouth tissues. Any mastic compound or putty that dries and hardens is a natural dehydrating agent and should be avoided. If cotton must be used as a mouth filler, then make certain that it is at least saturated with a liquid humectant prior to use — so as to minimize the wicking effect and resultant dehydration of the facial features.

For general cleansing before and during embalming, employ an emollient-based disinfecting-type cleansing soap specifically designed for embalming use. Avoid the use of less expensive, harsher formulations that are for general cleaning only. These soaps are dehydrating during their action and cosmetic effect will suffer. Especially avoid the use of bleach in cleansing or sanitizing — it is harsh and fast-reacting and contributes to dehydration and poor overall cosmetic effect and suppleness of the facial tissues. It is not recommended that bleach be used in conjunction with formaldehyde anyway due to its potential reaction with formaldehyde. Bleach, in fact, in diluted solutions such as its typically used in embalming rooms is a vastly overrated disinfectant and creates its own exposure hazards. There are numerous medium and high-level type disinfectants on the market for embalming use that have none of the disadvantages that bleach does.

It is also recommended that prior to shaving the remains, an emollient type skin treatment be utilized to avoid unsightly razor burning and tissue sloughing from the facial area. Aloe-based compounds are ideally suited for this purpose, but other humectants and massage creams are also acceptable.

EMBALMING: Unfortunately, most of all dehydration is usually caused by the embalming process itself. Formaldehyde dehydration has been with the profession for so long that its typical signs are now accepted as a natural adjunct and by-product of embalming. These signs are now taken as positive proof of effective embalming — i.e. skin-tightness, rock-hard rigidity, tissue shrinkage and wrinkling effect. These signs are, however, only that — signs — and not very reliable ones at that. This false belief has led to a widespread preference in the profession for the use of harsh, fast-acting high index formaldehyde-based fluids coupled with purposeful overembalming as a norm. This has resulted in dehydration being present in most cases and generalized less than desirable cosmetic effect.

CONTINUED: Dehydration in Embalming: Causes, Effects and Solutions  
Champion Expanding Encyclopedia of Mortuary Practices  
Number 630, 1998

**Skintone +**  
Moisturing  
Protective  
Spray

**Aloe Factor**  
Humectant  
Accessory  
Fluid

**Embalmers  
Putty**  
Moisturizing  
Mastic Cmpd.

**Base Cream**  
Moisturing  
Aloe  
Based

**Dehydration Control**  
**Hi-Tech      Innovative**  
**Effective**

**Champion  
Cosmetics**  
Lifelike  
Aloe Based

**MetriGuard**  
Non-dehydrating  
Spray  
Disinfectant



The Future Now: Formaldehyde Free

**Embalmers  
Soap**  
Emollient  
Disinfectant