

GASOLINE IN EMBALMING: A RIDICULOUS AND UNNECESSARY EXPOSURE /DISPOSAL HAZARD FOR EMBALMERS.

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Gasoline is now being formulated into drywash type embalming chemicals. Gasoline is one serious toxic exposure hazard and safety issue that is totally ridiculous and absolutely unnecessary in any embalming situations. The progression has been from dangerous chlorinated drycleaning solvents to hexane solvents and now devolves to just plain old gasoline. All of these chemicals are toxic, unnecessary and an environmental and disposal nightmare. How did the embalming industry get to this situation and why? These and more questions will be investigated and answered in our current article.

Come on baby, light my F-I-R-E!
Try to set this funeral parlor on F-I-R-E!
Let's turn this funeral parlor into a funeral P-Y-R-E!
Come on baby, light my F-I-R-E!
Try to set the night on F-I-R-E!

-Jim Morticianson, iconic lead singer/embalmer
for the legendary undertakin' rock band,
TheFuneralDirecDOORS

Yes, you heard it right! I didn't believe it either, at first. But sorry, it is absolutely true - gasoline is being formulated and in large percentage amount into drywash chemicals from some manufacturers in the embalming industry. Basically, this is nothing short of pathetic. Sorry if you don't like my tone and tenor of this article, but this rates so high on the absurdity scale that there is no diplomatic way to say it - this is just plain stupid, at least that's my opinion. So how did the funeral industry devolve into having charcoal lighter fluid incorporated into some of its embalming products? The story is tortuous and sad with only one bright spot, the decision by The Champion Company, under my direction as the Chemist and Director of Research, at a critical crossroads, to just do the right thing. Nobody else in the embalming industry did, and that's just the way it is. The story starts in the old days when everybody's drywash/cleaning solvent was the same thing, and then something happened.

In the good old days, dark ages might be a more appropriate terminology, chlorothene (1,1,1 - trichloroethane) was the norm for all drywash/cleaning solvents that were supplied to the funeral industry by all the embalming manufacturers. In those unenlightened days, it seemed acceptable enough. It was a very good solvent for about everything, evaporated quickly and was not flammable. It was definitely an exposure/disposal problem, but this fact wasn't recognized or appreciated. At any rate, chlorothene and many of its close chemical relatives were banned from manufacture, then distribution, and finally even use, as they were all serious ozone-depleting chemicals. Many freons and various other chlorinated/fluorinated chemicals disappeared from use when the ban became effective. Suddenly, the old drywashes that were bottled by the embalming suppliers were required to be reformulated. That's when all the trouble started.

On the surface, the logical and simplistic choice was just to choose a replacement cleaning solvent chemical that was readily available in the manufacturing pipeline. Those choices were obviously TCE and PERC (trichloroethylene and perchloroethylene), as they were bang-up drycleaning solvents and could just be rebottled and immediately sold as a new drywash/cleaning solvent to embalmers. This solution was essentially universally adopted by the embalming manufacturers, except for one - The Champion Company. When the fork came in the road, I flat out refused to formulate with TCE or PERC. Using TCE/PERC in drywashes delivered a solvent to embalmers that was basically indistinguishable from the old solvents and functioned exactly like the old stuff. Most embalmers didn't even know that anything had even changed - something that the embalming manufacturer's were quite happy about.

Unfortunately, TCE/PERC has an insidious darkside and that was also delivered to embalmers and the funeral industry. TCE and PERC both have massive exposure/disposal problems when used typically in embalming rooms and are the highest ranking groundwater contaminants in the U.S. Suddenly, most embalming rooms in the U.S. had and were using very dangerous chlorinated drycleaning solvents in embalming/cosmetic operations and contaminating the prep room effluent with the #1 groundwater contaminant in the U.S. - unbelievable! At first, the industry attempted to ignore the problem and pretend that "everything is just alright". The mounting evidence and indictment of TCE/PERC as a serious exposure/disposal hazard was too great to be ignored and the funeral industry finally recognized TCE and PERC for what they were — dangerous and difficult chemicals for which there are no good safety/disposal precautions and preventatives. I go even further and say that the implementation of these solvents is probably the worst idea in embalming chemicals in recent history. Unbelievably, despite all this information and knowledge of the dangers and problems of these solvents in embalming - you can still buy them! Any of the door-to-door peddlers of funeral supplies, at least the few that still exist, will happily order/take you a jug, irregardless of the extreme exposure/disposal problems that this toxic chemical has for embalmers. The lame and ineffective recommendations for their use and recapture is to soak it all up with cotton and don't dump it down the drain. Every embalmer knows, there is no way to use drywash/cleaning solvents in traditional/typical/ordinary embalming situations and not have it end up down the drain - on purpose or otherwise. Besides, what would you do with the solvent saturated cotton, if you did bother to try to soak it up? You get the picture here.

I have devoted an entire Champion Expanding Encyclopedia article to this sad situation that details the problems mentioned above and presents The Champion Company's alternative, lower exposure/lower impact drywash/cleaning solvent that is acetone/alcohol based and completely eliminates the hazards and disposal problems of chlorinated cleaning solvents. I encourage you to read this article, as it indepth spells out the problems manifest with chlorinated solvents in embalming. Some of the other embalming manufacturers, finally and reluctantly recognizing the massive problems with TCE/PERC, tried to go beyond the obvious chlorinated solvents and came up with another incredibly bad idea - hexane.

Hexane was the next poorly thought out idea for a replacement solvent for drywash/cleaning solvent chemicals in embalming. Hexane does not have as many problems as the chlorinated solvents do, but it is still a horrible choice for embalming operations. Overall it has unacceptable exposure/disposal parameters for embalming rooms. The odor threshold is very high and you are overexposed before you can smell the chemical, which itself has an atrocious and lingering gasoline odor. This makes a masking necessary with a coverup chemical like isopropyl acetate, which laughingly is listed on MSDS's as some secret ingredient. The whole secret ingredient thing is just a big joke in the embalming industry and why some still do it astounds

me. Hexane is a definite disposal problem in the embalming room and will end up down the drain somehow. Hexane is really just a clean cut of straight-chain alkanes from gasoline and is most used as a shoe glue solvent and in automotive work as a brake pad cleaner/degreaser. It's effects on bodies is typically burning and severe dehydration with a lingering odor. It does function as a solvent, so I guess that is the justification.

I have devoted an entire Champion Expanding Encyclopedia to the ill-conceived and unnecessary addition of hexane to the mix in drywash type products in embalming and the resulting exposure/disposal problems that it presents to embalmers, and I invite you to read it. After hexane didn't work out too well and its numerous problems became evident, some embalming manufacturers decided to just jump off the cliff and put gasoline in drywash/cleaning solvent chemicals. That's the next part of the story.

The next fork in the yellow brick road was a big one - gasoline as one of the major components in drywash chemicals. The MSDS's that are flying around says it all CAS#64741-63-5 is what we are talking about here. Technically, correctly and euphemistically you will see this listed as heptanes or aliphatic hydrocarbons as ingredients on MSDSs. Let me translate this for you - gasoline - specifically LCRN-D, light catalytically cracked reformed naptha. You are all familiar with this particular high aromatic naptha feed stream cut if you have ever used an old style, wick-type cigarette lighter. It is the major component of Coleman lantern fuel, Zippo lighter fluid, Energine cleaning fluid, most charcoal lighter fluids and appears in numerous other products, most notably shoe polish solvent, white gas, mineral spirits and aviation and racing gasoline mixtures. It is defined as a high aromatic naptha stream from cracked and reformed n-alkanes and cycloparaffinic feed streams that results in high aromatic and branched chain hydrocarbons of C5 - C12 with a preponderance of C7, which justifies calling it heptanes. Its PONA rating by the American Petroleum Institute is typically 60-1/5-2/5-30. PONA is a gauge for various component mix in petroleum industry feed streams and is defined as the Paraffinic/Olefinic/Napthalenic/Aromatic ratios present in a gasoline feed stream. LCRN's, such as is in the new drywash/cleaning solvents, usually are high in aromatics and low in olefins and naphthalenes, which makes them good as solvents and lighter fluids, as they burn hot and clean. A typical Chevron feed stream analyzed, for example, at 40% aromatic with a preponderance of C7's (heptanes) and the paraffinic compartment at 57%. Aromatics can even be higher, as an API concawe sample, MRD 95-047, showed aromatics at 63% and paraffins at only 31%.

Alright, so now we know what this is - gasoline. Why is it even in embalming products and in no small percentage? I have no idea. I just do not understand why we have to have gasoline solvents for any purpose in embalming. To me, this is definitely a low point in the embalming industry saga, but, sadly, I am not too surprised. I just do not know how it is possible to safely use and properly dispose of gasoline-based chemicals in the embalming room. We have enough hazardous and flammable chemicals already in the embalming room, we just don't need to add gasoline to the mix. This just increases the flammability concerns and drives the exposure limits in the wrong direction with OSHA limits dropping to 50ppm for these gasoline mixtures, a 4-10 times drop in exposure limits from alternative acetone/alcohol solvents.

The solution to this ridiculous situation already exists. You just don't have to have gasoline in the embalming room. The Champion Company, under my direction, never chose the yellowbrick road and we never will. We refused then and refuse now to formulate or sell TCE/PERC, hexane or gasoline derived drywash/cleaning solvents - period. We offer a reasonable and effective alternative solvent that is acetone/isopropanol based

and functions well under most circumstances. For those few situations where a heavier hydrocarbon solvent might be necessary, such as some difficult casket interior spotting, you can easily obtain a small consumer-use bottle of a typical spot-remover at any hardware store and have a minimal storage/exposure/disposal problem with its occasional, limited and controlled use. Much of drywash usage, nowadays, is removal of oldstyle greasepaint and pancake makeups from clothing and interiors. This usage is obsolete and not even necessary as modern water-based makeups exist which simplify removal and cleanup to nothing more than a mild soap and water solution.

You can justify and rationalize the use of gasoline in drywash/cleaning solvents all day as a necessary evil, but it just doesn't fly in the final analysis. When you add up the exposure, flammability, explosive potential, storage problems, lingering odor impact, solvent burning and dehydration effects on bodies, softening effects on plastic and rubber products, mandatory reduced exposure limits, difficulty of use without it going down the drain and impacting the environment and contaminating the watersupply, and disposal/removal problems if you managed to contain it in the first place (gasoline soaked cotton?) - it just doesn't compute. Sorry, this, in my opinion, is ridiculous and unnecessary. In fact, doesn't this sound like some anarchist cookbook recipe? A bottle, gasoline based solvent, cotton — hmmm, oh well, cocktails anyone - Molotov that is? I end on the following note - beware the yellowbrick road and all that lies along it. As always, embalm smart, embalm safe.

References: The MSDS's are all out there, all you have to do is read them. The American Petroleum Institute is a treasure-trove of information regarding about everything you ever wanted to know about gasoline and its refinement and production. The exposure hazards and environmental impacts of gasolines and their derivatives on groundwater and environmental compartments is widely available on the Web. The literature on TCE/PERC is massive and damning. The literature on hexane is substantial and kind of scary. Common sense tells you not to use gasoline in an indoor enclosed space and pour it down the drain, or soak it up with cotton. For further references consult my previous indepth Champion Expanding Encyclopedia articles about TCE/PERC and hexane. Need I say more?

