



# “GREENING” OF CREMATION IN NORTH AMERICA



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Global Warming has quickly become a household phrase as familiar to most of us as “googling” and “IM”. Feeling a step behind? Well, global warming is the very slow but steady increase in temperature of the earth’s atmosphere. This gentle but growing increase in temperature has been linked by many experts to the melting of the polar ice caps, future extinction of animal species and the loss of viable farming for the poorest of the poor.

Getting the word out on this potential threat and delivering calls to action have been through quite an eclectic group that you would not normally expect; politicians and preachers, environmentalists and economists, celebrities and CEOs, scientists and school kids.

True experts and scientists however, line up on opposing sides of this issue filled with passion and armed with data, one side claiming global warming is man made while the other assures us it is a natural cycle of the earth as old as time itself. A skeptical friend of mine (now gray and wrinkled) smugly informed me that he participated in the first earth day event, over 25 years ago, where they were warning the masses of global cooling and the coming ice age!

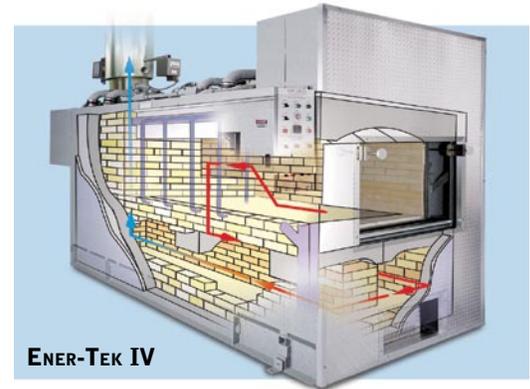
When you strip away the politics and posturing, what we are really talking about is taking care of the environment we will pass on to our children and grandchildren using the knowledge, skills and technology we have, all within reason. Care and concern for the environment may seem like the cause du jour but it really isn’t. We can look as far back as the book of Genesis in which it says God placed man in the Garden of Eden to care for it and protect it.

So what does all this have to do with cremation? North American cremation practices have long been considered environmentally friendly as compared to many places around the world. Much of this has to do with North American crematories being located primarily in funeral homes and city centers where there was pressure from a strong need and desire to operate cremation equipment as smoke and odor free as possible. Our sincere desire to be good neighbors actually resulted in us being environmentally friendly at the same time, long before it was as wildly popular as it is today.

Extensive testing by state, federal and independent agencies has shown time and time again that crematories operate well within the current environmental guidelines. United States Environmental Protection Agency (USEPA) testing even resulted in human and animal cremation equipment being eliminated from the list of industries that were to be covered by new federal environmental regulations in 2005.

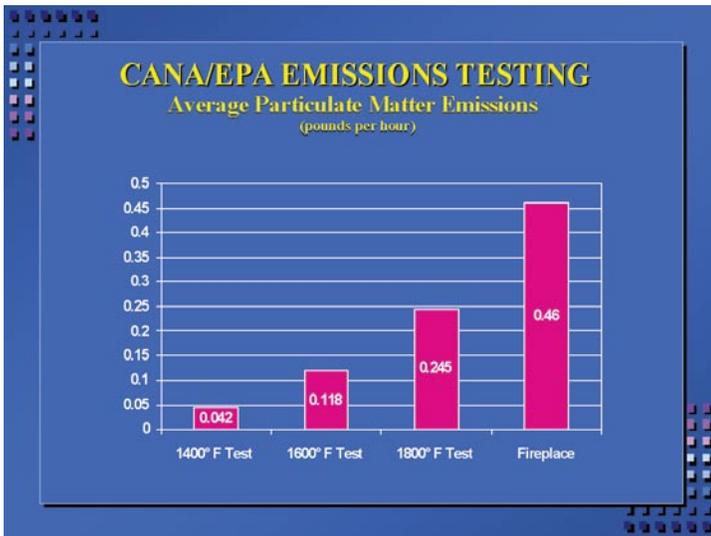
That’s all great news, but isn’t there more we can do as an industry? Should we voluntarily improve our “environmental signature” in the communities we serve, raising the bar once again as a proactive industry? Let’s discuss a few ideas and opportunities to do just that and set goals to make a difference in the communities we serve when and where we can.

Residence time is the amount of time the emissions from a cremation are held in the secondary chamber (after chamber) of the cremation equipment for the purposes of cleansing them. Many states require cremation equipment to be designed and operated to hold these gases ½ to 1 second which in most cases is more than adequate time. Most new “hot hearth” cremation equipment designs can now provide retention times of 2 seconds or greater, increasing the cleansing action of the cremation equipment which results in lower emissions from the cremation process.



Longer retention times are also helpful when cremating larger bodies and when tasking the cremation equipment to handle more and more cremations in a single day. It is difficult to add retention time to older or obsolete cremation equipment. There comes a time however when replacing and upgrading is the best course of action we can take.

Temperature of the secondary chamber, both adequate and steady, is critical in the proper operation of cremation equipment. Not enough temperature and there will be unwanted emissions from the exhaust stack, too much temperature and these unwanted emissions increase even more. So what is the “just right” temperature for cremation? Extensive environmental testing conducted jointly by the USEPA and CANA, the Cremation Association of North America, proved to be invaluable in solving this debate amongst environmental professionals. Graph 1 depicts results from over 1300 pages of a USEPA report on crematory environmental operations, shows clearly that 1400°F is the ideal temperature. Emissions from cremation equipment increased significantly when the secondary chamber temperature was increased from 1400°F to 1600°F and then increased again from 1600°F to 1800°F.



**GRAPH 1**

Many states and provinces have been slow to adopt the findings of this breakthrough research however and as an industry we will continue to educate, inform and nudge our government leaders to do what is best for all; environment, public and cremation professionals.

Temperature control systems, while standard on most new cremation systems, can be added or adapted to older and existing cremation equipment for reasonable costs which will eventually pay for it in fuel savings.

Opacity controls are optical scanning devices positioned in the cremation equipment exhaust stack to watch what is going up the stack and out to atmosphere. These devices can be configured to take action when they see something we don't want to occur. If they detect visible smoke entering the stack they can sound an audible alarm, turn on a warning light and will even take corrective action adjusting the fuel and air automatically, usually correcting any smoke condition within seconds. While these systems are not exactly new to our industry, their inclusion into cremation equipment designs has been limited to mostly only the more environmentally advanced cremation systems. Opacity controls vary in their complexity however basic designs work well for cremation equipment and are relatively easy to adjust, maintain and calibrate. The State of Florida recently adopted the requirement of opacity controls on all new cremation equipment beginning early 2007. More good news is that these systems can be added to most all existing and older designs for reasonable costs to the crematory owners

Newer cremation technology is also beginning to emerge or is at least currently emerging in more affordable designs. This technology can decrease the use of fossil fuels in the combustion system and decrease emissions from the cremation process, both a bonus to our environment.

Intuitive Logic Control™ (ILC) is an automated control system that depends less on the knowledge and expertise of the crematory operator and more on the reality of what he is going to cremate at that moment. All of us in the industry know we experience significant variables in the types of cremation containers we receive. Not only do the materials differ widely but the weight can range from 7 pounds to 170 pounds. We receive



human remains for cremation ranging from 60 pounds to 600 pounds and those same bodies have varying fat tissue percentages from 4% to 40%. All these variables and others impact the cremation process and the decisions operators are faced with.

Intuitive Logic Control systems only require the operator to answer a few questions and the ILC system calculates the options and sets the parameters based on many automatic inputs and logic programs. This reduces the opportunity for operator error which in turn will reduce the emissions from the cremation equipment, another win-win for everyone involved. ILC systems can be added to most new and existing cremation systems for costs that are well within reason for most North American crematories.

Oxygen control is another available technology while not new has certainly improved in performance and price. Oxygen control systems measure O2 levels in the exhaust gases at the exit of the secondary chamber of the cremation equipment. Controlling O2 to optimum levels provides benefits on many levels. First, steady oxygen levels in the combustion process reduce

emissions from the cremation equipment by more effectively cleansing them with ideal mixtures of O2 along with the gases given off in the cremation process. Second, by controlling O2 more closely to the level required, less fuel is needed to heat up any excess O2 in the system. Reducing fuel consumption not only reduces money spent, it also reduces emissions by not burning the fuel which by itself creates unwanted emissions. Thirdly, tighter control of oxygen will impact the time required for cremation, reducing it along with the emissions and fuel consumption. Oxygen control systems are still considered pricey by some crematories but advances in technology and manufacturing have brought it into the realm of possibility for many new and existing crematories.

Beliefs and motivations surrounding global warming and the environment will vary amongst those in our industry as will the ability to afford and install the newest and most effective green technology. However, a common goal we can all embrace is to learn as much as we can regarding our industry and the environment, steadily moving towards improving our environmental signature in the communities we serve.

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