

On The Forefront: October 2005

By Phil Zarrow

Lead-Free or Die

*“Send lawyers, guns and money, the sh-t has hit the fan”
Warren Zevon*

Last year, I presented, in this column, the Five Stages of Lead-Free. Now, a year later with less than 10 months to go before RoHS goes into effect, it is interesting to see how the industry is coming along. It depends upon where you look.

The Five Stages of Lead-Free

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DENIAL

Upon learning of the implications of RoHS, the first response is one that can best be described as shock. The shock resulting in *Denial* is usually a very temporary defense.

ANGER

When Denial can no longer be maintained, it is replaced by *Anger*, rage and resentment.

BARGAINING

This is an attempt to postpone the unavoidable. Exemptions are sought out. However, the majority of products will have to comply.

DEPRESSION

Rage and anger are eventually displaced by fear of the work ahead. *“Lead-free is a logistical nightmare. How will we ever going to make the conversion?”*

ACCEPTANCE

We will overcome the obstacles and adapt, where appropriate, to lead-free.

As tempting as it may appear to be, from our perspective, it is not likely that someone is going to come up with a Reality TV show based upon our industry. However, the next best thing is an industry internet based bulletin board sponsored by the IPC called *TechNet*. It has everything – entertainment, anecdotes, pathos, some occasional wisdom and knowledge passed along amongst the conspiracy theories and misplaced political commentary. While there is what could be called a “regular cast of characters” (with emphasis on *characters*) there is no casting call - it is free and open to anybody and

everybody. Keach Sasamori and Jack Crawford of the IPC do one helluva great job watching over this vast international juggernaut of opinion and controversy. While the advice is free and you “get what you pay for”, TechNet serves another important purpose – it is indicative of the pulse of the industry – at least with regard to North America and Europe. Market forecasting companies and their respective analyses, charts, etc. are fine and serve a purpose, but these are the men and women who are actually designing and building our circuit board assemblies.

Every now and then, someone will input a topic that will spark a virtual forest fire on “The ‘Net”. A year ago, about 10% of the content on TechNet dealt with Lead-free and/or RoHS. At present, I would have to say RoHS/Lead-Free topics comprise, on any given day, about 60% to 80% of TechNet’s queries and comments. Of particular interest were recent threads questioning whether or not we are “just a bunch of lemmings” and more specifically, “why not just say No to RoHS?” Alas, latent Denial.

I guess my first reaction to this was along the lines of where were you 8 years ago when this dastardly plan was conceived? This horse is long out of the barn and the doors are off their hinges. Meanwhile, on TechNet, the numerous responses indicated that most of the industry in TechNet’s constituency is in the Anger phase - big time. Let’s go burn down city hall!

Let’s look at this, though, in a calm, cool, collected manner. Although the industry magazines have been plastered with articles on the upcoming Lead-Free apocalypse for the past 4 years or so, the industry marketing folks of the companies distributing product in the EU seemed oblivious to it and never rang the alarm - as in “what are we doing to prepare for this eventuality?” On the one hand, outside of our industry, when was the last time you saw an article on the subject? It didn’t make CNN, BBC, SKY news, FOX news or USA Today (though I did hear a story recently on lead-free ammunition on NPR, of all places). Still, if you are a design or process engineer in our field, you had to be aware of the situation from all those articles in the magazines piled on top of the toilet in the men’s room or other company library.

But can you say “no” to RoHS? The obvious answer is “yes – and blow off your EU market”. While there may be the odd company or two willing to do that, it’s not that simple a situation. To paraphrase Paul Simon, “RoHS like a cancer grows”. Copycat legislation is afoot. For example, China and Korea, both places long renown for their environmental awareness allegedly have legislation pending that is a mimic of RoHS. Obviously this is an accommodation (polite for suck up) to the EU. . But it gets closer to home: several states in the good ol’ US of A are looking at similar legislation. California has Senate Bill 20 which has more than a whiff of RoHS (and I don’t think the governor will be terminating it). It follows, perhaps not quite to reason, that other states will be doing “cut and paste” of RoHS within the next few years. I think we can guess the usual suspects: Oregon, Massachusetts, Vermont, Wisconsin, and Minnesota among others. So sure, go ahead, take a stand and just say no to RoHS. Your competitors will love you for it, especially your friends in Asia.

Oh, by the way, I have been in PCB assembly facilities in Southeast Asia that have been 100% lead-free for over 2 years now. Granted the majority of them have been building products for Japanese companies, particularly consumer electronics. The Japanese have had a lead-free roadmap in place since 1998 but it was industry driven, not government mandated. Nevertheless, let it be known that there are electronic assemblers who are well into the Acceptance phase.

Another alternative, representative of the Bargaining phase, that is actively being sought out, are exemptions. Is the product your company builds among those that are currently exempt from RoHS compliance? Quite a few products currently are - with the emphasis on *currently*. In the majority of cases you don't want to hang your hat on an exemption. First of all, do you really think that the fathers of the RoHS legislation (or "mothers" as many refer to them as) really only intended to cover perhaps 50% of products produced and leave it at that? Well then, think again. Those exemptions will be reviewed at least every 4 years and will have to be defended - vigorously. In other words, most of them are fleeting things. In the meantime you have the Green Party in Europe decrying the exemptions presently in place.

If the vast majority of the industry will have to comply with RoHS, what do you think will happen to components containing lead? As demand drops, so will supply. Where will you purchase lead finished components and PCBs? It is very similar to the situation with through-hole parts as SMT kicked in. Except this will happen a lot faster since it is mandated by legislation with deadlines for compliance. It won't happen overnight but it is happening already. Those lovable rascally component manufacturers are already changing to lead-free lead finishes and in many cases not telling us via change in nomenclature, so you can be sure they are going to go with the masses. Want to stick with lead-bearing components? Can you say "end of life buy"?

Needless to say, the truly wise engineers at companies that have exempt products are looking at transitioning to lead-free as well as meeting the rest of the RoHS requirements. They know that exemptions are not a commuted sentence but just a stay of execution.

There are definitely people in our industry, in heavy Denial, who feel that RoHS and lead-free just can't and won't happen. Twenty-five years ago there were people in our industry who felt that SMT was just a fad as opposed to the trend it was. Where are those nay-sayers now? Either retired or dead and certainly glad they don't have to deal with RoHS. As for the rest of us, remember that we're all in this together.

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