Wells, Mary Gay

From: Glade Squires [SquiresG@ameribrom.dsbg.com]
Sent: Monday, March 28, 2005 2:23 PM
To: Wells, Mary Gay
Cc: Glade Squires
Subject: Information For Representative Wagman (EX)

EXHIBIT 10
DATE 4-1-05
SB SJ 15

Dear Ms. Wells:

At the House Human Services Committee meeting on Wednesday, March 23rd, Representative Wagman asked me to send to him, through your email, an answer to a question he posed. If you would be so kind as to pass this along to Representative Wagman, it would be most appreciated.

Thank you kindly,
Glade E. Squires

Dear Representative Wagman,

I want to thank you very much for your time and consideration last week as I testified before the Human Services Committee. You asked me to gather the relative rates of heat release of cotton, pine and various plastics. The values are below.

Material	Rate of Heat Release, Kilowatts per Square Meter
Cotton	450
Wool	310
Pine	117
High Density Polyethylene	1,400
Nylon	1,300
Polypropylene	1,500
Polystyrene	1,100
Teflon	13
Polyvinylchloride	244

As you can see, the natural materials all burn at much lower rates of heat release than the synthetic materials. This is the very reason that the synthetic materials must be flame retarded as they pose such a significant fire hazard. However, our lifestyles are totally dependent upon these synthetic materials from fuel efficiency in automobiles, trucks, trains and aircraft to the convenience, styling and economics afforded by these materials to appliances and electronic items. I added at the bottom Teflon and Polyvinylchloride (PVC) as an interesting example and comparison. Although both of these are synthetic materials, they both contain very high levels of halogen in them. Teflon contains a significant quantity of fluorine and PVC contains a significant quantity of chlorine. These are both elements that along with bromine and iodine comprise the "Halogen" family of compounds in the Periodic Table. Both Teflon and PVC release low levels of heat upon combustion with Teflon producing one of the lowest levels of all combustible materials. This brings us to why bromine is an efficient flame retardant. Fluorine atoms are bound too tightly to the molecule and are not released fast enough to be efficient as an additive flame retardant for any plastics. Iodine is held too weekly by molecules and is essentially unstable. Bromine and chlorine are both efficient flame retardants. However, on a weigh basis, bromine is twice as efficient as chlorine thus significantly reducing the amount of flame retardant needed and used.

I hope this is of help to and other committee members. If I can be of further assistance, please let me know and I will happy to support you and the committee in any way.

My very kind regards,
Glade E. Squires