

Institute of Textile Science - 103rd Scientific Session April 1, 2008

On April 1, 2008 the ITS enjoyed our 103rd Scientific Session at the Industry Canada building in Ottawa. Bernard Ouellette of Industry Canada opened the day with a word of welcome to the group of more than 27 attendees. It was very encouraging to see the session so well attended with representation from industry, academia and government agencies. It was clear that we all realize just how important it is for the Canadian textile industry to share knowledge and expertise in order to remain vibrant and active for the future.

At this particular session, we continued on with the subject of "Durability of Textiles and Textile Coatings" with three excellent presentations from three very different perspectives.

Our first speaker was Professor Wang from the Georgia Institute of Technology. Dr. Youjiang Wang received his BSc degree in Textile Engineering from Donghua University and his MSc & PhD in Mechanical Engineering from MIT. He gave us a very thorough

introduction to the mechanisms of aging and degradation of polymers that are used in textile or their coatings. Of particular interest was the degree in which the various mechanisms of aging do not act independently.

Although many of us may consider each mechanism individually when trying to determine product durability, and many of our testing guidelines do the same, it is clear from the perspective of Prof Wang's paper that the mechanisms are quite interdependent and there can be significant synergies occurring;

for example, UV degradation is not a mechanism that occurs on it's own, very often it has a temperature and oxidation mechanism that works in synergy with it. These are the kind of aspects that we, as technical people, need to keep in mind when providing guidelines on the durability of products.



Professor David Torvi from the University of Saskatchewan then introduced us to a notable and hands-on study in the aging of firefighter protection gear. The ability for firefighters to understand the functional life of a protective garment is something that is ideal not only for their ongoing protection but also for their peace of mind. To this end, Dr. Torvi's group set out to develop a predictive and non-destructive test that could



indicate the product's performance without destroying the actual garment in the process. It was interesting to see how they worked closely with local firefighters to determine conditions and expose fabrics in full scale residential test burns to develop that tool. The outcome was the use of fairly straightforward colour measurements to predict product performance and ratify that performance with side by side destructive testing. Prof Torvi's background fits this area of study quite well, he received his BSc in Mechanical Engineering from the University of Calgary, went on to complete his MSc and PhD at the University of Alberta. From there he spent a number of years with NRC / Ottawa in fire testing and modeling and now applies his knowledge in fire testing, heat transfer and design as a professor in the Department of Mechanical Engineering at the University of Saskatchewan.

Our final presentation was an interesting paper from Dr. Jane Batcheller of the University of Alberta. Dr. Batcheller graduated with a BSc. from the University of Alberta and completed her PhD at the University of Manchester in Textile Archeology. She is now a Textile Technologist at the University of Alberta in the Textile Department in Human Ecology. In her course of studies and in her recent work, Dr. Batcheller had the opportunity to study textile samples retrieved from an archeological excavation of an Egyptian village circa 1 - 6 A.D. She led us through a fascinating overview of her testing and observations made on the textile



samples that had been recovered. The natural preservation of these samples was quite incredible and the thorough analysis of the yarn types, the structures, the fiber selection of the time and finishes that the fabrics and yarns had undergone gave us interesting

insights as to the textile technology of that time. I think that much of what Dr. Batcheller uncovered in these samples reinforced in everyone's mind that the undergirding of all our textile technologies has existed for thousands of years, indicating to us once again that there is very little that is truly "new under the sun"; rather it is our ability to use and apply the talents and knowledge we have to current technology. We can apply this understanding we gain to develop new products and new markets for the Canadian textile industry.

At the close of our meeting, we had the opportunity for an open forum discussion. In this discussion a number of ideas were brought forward to help ITS provide greater value to our members. Some of these points raised were:

- Develop conduits that allow information to flow from universities to industry easier
- Broaden the website to provide links to research institutes of interest
- Provide a means for on-line technology forums
- Utilize modern technology (conference calling, video conferencing) to broaden our sessions and reach our colleagues across the country
- Suggested topics for upcoming Scientific Sessions include:
 - Provide an opportunity for universities to present an overview of their studies and areas of expertise
 - Plasma treatment / plasma printing of textiles
 - Surface treatment of textiles in general



A "networking lunch" enjoyed by all!

It is our intent that the Scientific Sessions continue to provide a forum for the sharing of technical ideas and knowledge in a cooperative environment. We sincerely hope we are reaching (or at the very least, approaching!) that goal with every session we have. We wish to continuously improve what we do so we thank you for your input and we welcome any input or comments you may have.

On behalf of the ITS Board of Directors,

Kasper Van Veen