



## SLTC hosts annual conference

The UK's Society of Leather Technologists and Chemists (SLTC) held its 122nd annual conference in Northampton on April 27. The keynote Procter Memorial Lecture was given by Dr Michael Meyer of FILK on the subject of the thermal behaviour of collagen.

Callum Mackay from the Institute for Creative Leather Technologies considered the role of water in chrome tanning and the implications of low water usage processing. This work, in combination with Qualus, utilising XOrbs to replace the traditional 'float', examined reduced water usage, shorter processing time, chemical savings and reduced effluent output.

Gordon Paul from Devro discussed the use of collagen as a raw material for the manufacturing of sausage casings, films and gels; Eric Poles from Silvateam discussed the antibacterial qualities of vegetable tannins, with specific reference to chestnut, quebracho and tara.

Former *World Leather* technical editor Richard Daniels gave an update on the progress of the replacement of the SLTC pocket book – a project officially started in 2018. The project aims to create a 'virtual library' and reference compendium in an e-friendly format for anybody who wishes to know more about the industry. It will also cater for technicians in developing their understanding of the different technologies and sciences involved in leather manufacture.

Business improvement coach Rumon Hankey gave a presentation on lean principles, followed by a presentation from Jeffrey Guthrie-Strachan of Trumpler on the company's work on managing chemical oxygen demand in post-tanning processing.

Rachel Garwood, Director for the Institute for Creative Leather Technologies, was the final speaker giving an update on the centre which will move to a new site later in the year.

The conference finished with the presentation of the Axel

Landmann certificate – an award given to recognise outstanding contribution to the industry. This year's recipient was Malcolm Leafe, the editor of the SLTC journal.

At an evening event outgoing vice-president, Stephen Trantum of Trumpler, hand over to the new vice-president, John Hubbard of SATRA. 🇬🇧



Dr Michael Meyer of FILK receiving the 2019 Procter Memorial Lecture certificate from Matthew Abbott, World Leather's technical editor.

# 115th American Leather Chemists Association Annual Convention

*The 2019 American Leather Chemists Association's annual convention took place at the Mission Inn Resort and Club in Florida, May 14-17. The John Arthur Wilson memorial lecture, which traditionally opens the event, was delivered by Gustavo Gonzalez-Quijano, secretary general of COTANCE. Entitled 'A Future for Leather', this talk looked at the critical challenges the leather industry must address including a declining market share, its appeal to consumers, and the influence of activist organisations and their promotion of lifestyles such as veganism that is expanding in western societies.*

Leather is not a sunset industry and as such Europe's tanners have stepped up efforts to dispel that myth, Mr Gonzalez-Quijano said. Alongside projects in social dialogue, COTANCE has set in motion a process of improving the image of Europe's leather sector in the public perception and, in terms of industrial strategy, tanners have clearly focused on strengthening the identity of leather, defending the term against those who ride on its coat-tails. They are also engaging in a sustainability strategy, with the definition of rules for calculating the environmental footprint of leather and its role in the circular economy.

There were a further 20 presentations over the two-day convention covering many aspects of leather manufacture but also looking at changes in legislation and leather species identification.

Regarding raw materials side, two presentations looked at ways to improve meat safety and by-product quality. With recent cases of raw meat product recalls due to bacterial contamination, USDA-based research looked at two ways to prevent these situations in the future. One study looked at work on the animal carcass, whereas the other was pre-slaughter. On the pre-eviscerated carcass, the development offers deep microbial cleansing by removing manure and mud from the hair; these can harbour the pathogens that cause food safety concerns. With regards the pre-slaughter study, the combination of various surfactants and anti-bacterial agents was analysed, with the development of several effective spray-wash formulations able to reduce the bacterial concentration to safe levels. In both cases, post treatment analysis revealed no detrimental impact on resultant leather quality.

Moving to work carried out in tanneries, presentations looked first at beamhouse operations. Stahl covered the use of biochemicals not only to improve the resultant effluent and odour but also the sustainability of the process. As an alternative to synthetic surfactants, biochemicals, derived from the fermentation of natural ingredients with probiotics, can be used and at the same time boost the performance of other chemicals, reducing soaking and process time and thus contributing to the reduction of the carbon footprint.

In a similar vein, the use of new-generation liming auxiliaries with a selection of enzymes can greatly reduce or eliminate the use of sodium sulfide, one of the greatest contributors to odour and to safety concerns. The presentation compared the effects of each of the



*Gustavo Gonzalez-Quijano delivered the John Arthur Wilson opening lecture at the 115th ALCA.*

beamhouse processes on the leather and on effluent, with the aim of helping leather technologists to select products and techniques to fulfil the most demanding sustainability standards.

Continuing with the beamhouse theme, Buckman's presentation on the use of bio-based solvents in degreaser formulations covered new research on the use of glycerol-based components, differentiated from fat emulsion agents as they are safer, odourless and made from renewable resources. In an effort to replace nonylphenol based products, the biofuels supply chain offers effective and promising components for a degreaser formulation. In order to evaluate this class of components, a research methodology was defined using computer simulation, bench tests, laboratory tests and industrial-scale trials, with findings that show comparable performance with nonylphenol ethoxylate-based products.

Also on the subject of odour and of VOCs, Lanxess focussed on automotive upholstery. Commenting that whilst



VOCs were entirely predictable, odour was not, and this was the latest challenge. Whilst there are many specific test methods for VOCs there really is only one qualitative test for smell: the human nose. This, being purely subjective, gives varying results between people and regions. It was also pointed out that leather has good absorbance and whilst VOCs may become absorbed in as little as three days, it can take up to 120 days to return to the original state. Over the last 10 years, smell ratings have increased due in part to the fact that as VOC limits have become stricter and thresholds lowered, odour emissions have become more obvious.

Moving into tanning and furthering the work presented at the UK Society of Leather Technologists and Chemists conference in 2018, Elementis updated its investigation into the basicity of chrome. Whilst new developments in chrome chemistry do not occur too often in the industry, there have been requests from tanners to improve penetration, uptake and fixation and to accomplish them more quickly. Two new products have been developed to meet these challenges and the new functional properties along with practical results were presented.

Another presentation, this time by French company ATC, again furthering work already carried out and presented back in 2017, looked at the improvement of wet blue and chrome-free tanning for a better environment. With reference to successful industrial-scale production, the presentation showed how ATC's product simplified and shortened the chrome tanning process – allowing less chrome offer to be used while still achieving similar chrome content results, with the added benefit of reduced salt and acid in the pickle process – if a pickle process is required at all. This latter factor, when used in a chrome-free tannage trial, showed an improvement on physical properties such as tear strength. Whilst not initially intended for the chrome-free market, this unexpected finding could prove beneficial.

Within the theme of beamhouse and chrome tanning, leather consultant and former *World Leather* technical editor Richard Daniels presented his work carried out in conjunction with Biosk of China. Utilising a closed-loop system for processing wet-salted hides to the wet blue stage, the presentation showed considerable advantages in chemical savings, reduced water use and simplification of the effluent treatment and associated cost savings for the solid waste. This method reduces the offer of active chemicals as the carry-over from previous processes is kept and reutilised – only adding more to 'mend'. This elimination of waste chemicals from the process stages avoids the treatment of sulfides and chromium from wet blue manufacture with minimal change to the process.

Covering the subject of vegetable tanning, Silvateam presented its new metal-free tanning system based on modified extracts of gall nuts and tara. Although anionic in nature, the gallic tanning agent can have its reactivity modified by the addition of a cationic ester in the tannage, giving a much more amphoteric leather. Utilising a blend made from gall nuts, chestnut and tara, with a tannin content of approximately 66%, the resultant leather obtained a shrinkage temperature of over 80°C and had a very pale colour.

On the subject of dyeing, a paper entitled the 'Determination of the dye diffusion rate on cattle wet blue' was given by Curtiduría Hidalgo in Ecuador. It covered an analysis of the diffusion rate of a standard dye at

differing concentrations over time, but also across differing raw materials.

With a focus on leather finishing, The Dow Chemical company discussed next-generation acrylic particle technology for high-performance leather finishing. A common theme across categories of leather upholstery finishing systems has been the need for relatively low gloss. Whereas silicates have traditionally been used for this, there is now a surge in the use of polymeric matting agents. With their excellent haptic and aesthetic properties, the improvement in their wear resistance and matting efficiency in more recent times has increased their popularity. The presented paper gave an insight into the research behind the formulations for the next-generation acrylic bead formulations.

Continuing the topic of leather finishing, Fratelli Carlessi gave a presentation of their Spray Lab XL. Essentially a wider working width version of their Spray Lab, this machine is designed to allow the production of samples that are equal to the final production. It is also able to produce more samples in the same timeframe with savings on chemical use, time and power. The automated single spray gun set-up can be programmed to replicate the spray style and drying function of the individual tannery's own finishing line and thus allows samples to be made without disrupting production flow.

With traceability high on consumers' list of desires these days, The Leather Research Laboratory of the University of Cincinnati gave some insight into its work on species identification using mitochondrial DNA. Identification of leather species is mainly by skilled operators using optical microscopy and an extensive visual reference library. In the leather making process, DNA is mostly destroyed but by concentrating on mitochondrial DNA (mtDNA), which has a much higher copy number, and is only transferred from the mother, it is more likely that some survives. From the study, a detailed protocol was provided, plus a proof of concept with demonstration that the species of leather can be reliably detected.

'Leather for the next generations' was a presentation given by Hans Van Haarst of Smit & zoon. Looking at the leather value chain, with its economic, environmental and social flaws, the end consumer puts significant pressure on the usage of leather and the perceived attractiveness of leather versus other materials. With the combination of the pressure the leather industry is under and the possibilities sustainable chemistry offers, unique possibilities and opportunities for the industry should be created. Value in use should outweigh unit cost in sourcing decisions and substances that do not positively contribute to the leather properties should be phased out.

Looking at leather from a finished product viewpoint, Whitney Tinsley of furniture group Moore & Giles led the assembled attendees through their approach to the ever-changing market, be it footwear or upholstery leathers, proudly promoting leather as the original performance material in its natural state.

Other papers discussed the conversion of collagen waste into valuable products by development of leather fibre reinforced polymer composites and the antioxidant activity of cysteine and cystine prepared from wool keratin. There was a final presentation by the Mexican tanning industry association describing that country's tanning industry, its importance and potential in world markets for hides, skins and leather. 🌐