



SLTC 119th Annual Conference

The 119th Annual Conference of the Society of Leather Technologists and Chemists (SLTC) was held at the University of Northampton on 23rd April. This was followed in the evening by the SLTC Annual Dinner Dance.

Five papers were presented in total, including the Proctor Memorial Lecture entitled “From sheep yards to SNP chips – The changing face of rawstock research”, presented by Dr Sue Cooper, New Zealand Leather and Shoe Research Association (LASRA). The other papers presented included:

- The future of vegetable tanning, by Nigel Payne & Peter Atkinson
- Digital printing on leather by Dr Barry McGregor, Fujifilm
- A sustainable future for the leather industry by Mike Tomkin with support from Stahl
- Water saving processing by Karl Flowers, ICLT, University of Northampton

In addition to these presentations was a debate entitled “Chromium VI and the future use of chromium in leather manufacture”.

The Proctor Memorial Lecture

Dr Cooper described the changing functions of LASRA since its establishment in 1928 to its role today. Here, over and above information services and support, it has three main areas of research: improving hides and skin quality, fundamental research into hides and skin composition and structure, and improvements in process. However, the focus of the presentation was firmly placed on the practical aspects of hide and skin improvement, such as the cause and elimination of cockle, the reduction of scratching damage on hides when linked with treatments to reduce lice infestations, and cause of looseness. Much of this detail was based on on-farm research on large scale multiple investigations, covering many different species of sheep and cattle. More recently investigations have taken place into the tear strength of deer skins, and how single nucleotide polymorphism genetic markers (SNP Chips) have shown that tensile and grain strength, and the severity of grain breakage in flaying the carcass are heritable.

Dr McGregor of Fujifilm presented details on developments in digital printing on leather, with insight into the choices that are possible in the selection of ink colours and types available. This was according to ink properties that include adhesion, chemical resistance, thermal stability, UV resistance, and brittleness of binder. As an overview it appears that first a carefully controlled precursor layer on the grain is required, good adhesion between the leather surface and ink, controlled uptake and resultant film thickness, and a clearly defined image. In wear, flexing resistance is required up to 100,000 flexes, and a top coat for extra protection. Both colour and personalised images are possible for customising, and equipment that is commercially feasible is available.

Mike Tomkin provided a wide spectrum paper on sustainability, how the leather industry is addressing these demands, and what should be done by tanners. The issues that are now at the fore include:

- Traceability and Animal Husbandry – now key issues.
- Corporate Social Responsibilities – in particular for care in terms of good practice and for the wider environment
- Carbon values – allocation now shifting from the raw hide firmly toward the supplier of chemicals

“Chromium VI and the future use of chromium in leather manufacture”

This subject was discussed by a panel, where each panel member provided input, but where a number of issues raised previously by members of the society were addressed. The panel was chaired by Reg Hankey, the other panel members representing Lanxess, ICLT, SATRA and UKLF.

Here it was concluded that:

- The carbon footprint differs according to the different manufacturing techniques, but chromium-based tannages are not problematic when compared to other methods.
- Failure rates where CrVI has been determined in final leather goods, but these are not necessarily for highest quality sources of leather manufacture.
- Most issues on storage are based on final products. With leathers not specifically made to prevent the formation of CrVI, the changes are potentially influenced by light, heat and moisture.
- The present limit of 3mg/kg as CrVI might be driven down to lower values by future pressures.
- Under extreme conditions, CrIII can be converted into CrVI. Conditions of high pH/temperature and oxygen favour this conversion, and if these are present when an article with CrIII content is disposed of, then CrVI can be formed, but we do not know to what extent.
- Ash from combustion is very hazardous, and has to be perceived as having a high CrVI content. Gasification can give an ash that is CrVI free, and in principle is a good system.
- There is no practical spot test for CrVI
- There is no linkage between water extractable chrome and CrVI.
- If manufacture is managed correctly – and there is considerable understanding of the techniques involved – there should be no CrVI generated from leather manufacture.
- The test method for detecting CrVI may not be right and amendments are needed to detect lower values of CrVI in the presence of larger values of CrIII.
- Investigations that include X-ray scanning analysis, neutron detection and magnetic resonance are being funded by Leathersellers, UKLF, and conducted by ICLT to find out at fundamental level if a viable test method can be developed. This should find out if a problem exists with test methods or not, and if so how this should be addressed.
- At present there is considerable pressure for the removal of chromium compounds from leather manufacture.

It was concluded that these issues relating to CrVI have to be fully understood, and central to this is a reliable test method. The problem needs to be addressed once and for all, and with this understanding there is the basis to responsibly educate customers. ☺