

End of life, or the start of a new one?

Technical editor Mike Tomkin sets the scene for one of the special themes World Leather will examine in 2018: end-of-life recycling.

During 2018, *World Leather* will examine methods for reducing waste during leather processing and look at ways that leather and leather products can be reused at the end of their normal lifecycle so that they do not end up in landfill. We know that the cost of waste disposal will continue to rise and that many more restrictions will be put in place. As a result, it is important we look at variations on existing technology as well as at brand new ideas, rather than wait until it is too late.

With regards to the current regulations, the automotive industry is already facing some tough challenges; over 85% of a redundant vehicle must now be recycled in Europe and this will soon increase to 100%. This of course includes all the seating, regardless of the type of material used, so it will include a large volume of leather.

The responsibility for doing this recycling lies with the companies in charge of scrapping the vehicle, so there will be no immediate impact on the original processor of the leather. Nevertheless, given that aspects of the original leather processing or the chemicals used in those processes may limit or block the recycling of the leather, it is inevitable that they will need to become more closely involved.

The fact that such a large volume of the leather used in car seating is now laminated with foam on the back can also make recycling it more complicated. This perhaps

suggests there is a need to make a change to how the leather is processed to make it stand up better and thus reduce the need for laminations.

Pre-emptive action

Automotive is not the only industry facing increasingly stricter legislation on product recycling. Electrical goods now have to be handled separately from other waste across Europe and in some countries there is a tax included in the original sale price of these goods to cover the cost of recycling. Whilst this is unlikely to be on the agenda for leather-based products any time soon, everyone in the supply chain should be actively looking to reduce or eliminate waste during processing and at the end of life to avoid the need for any such legislation.

It has been interesting to observe the changes in the electrical industry that have come in response to pressure to recycle. There is a greater availability of spare parts, which has directly resulted in the extension of life of the original article. The deconstruction of goods at end of life has become as important as the original construction process. This is also the case for the automotive industry and should serve as a pointer to those in the leather supply chain for their future actions.

The complications for recycling automotive leather caused by the lamination process seem fairly mild when compared with those facing people trying to recycle shoes. This is





because so many more different raw materials can be used in the final shoe construction. The deconstruction of the shoe and the separation of these different components remains a challenge which many in the supply chain have yet to address. Some shoe brands are now offering to take back used pairs in part exchange for new products. This could conceivably lead to large volumes being dumped at certain landfill locations, which would increase the likelihood of legislation being brought in to prevent this from happening.

If the leather industry is to collectively respond to the challenges of recycling, the various trade organisations will need to pull together as one, something which has clearly not happened so far. Despite the strong input of a number of individuals, and some individual trade groups, inter-group frictions have sometimes prevented these bodies from taking a unified approach. Finding answers to the questions related to the recycling of leather articles is something multi-stakeholder group Leather Working Group (LWG) could possibly be involved with. The answers will need to come from not only the tanners, but also their customers and suppliers. At *World Leather*, we would be happy to hear from any readers who have new ideas on this subject, which could be included in future articles.

Concern over cost

What are the options for leather articles at the end of their first lifecycle? An obvious one is incineration; a number of tanneries have already shown that leather waste can be safely burnt without the release of Chrome VI. If this is used to create useful energy, then it could be one potential solution. However, it would require an extensive collection network and transportation to sites capable of carrying this out.

It is conceivable that larger areas of leather, from furniture or car seats for example, could be used for making smaller leathergoods, but, as previously mentioned, the lamination on a seat would limit the option to do this. It is possible that ground up leather could be used as a partial replacement for

sand in cement making. As the average life span of new buildings is thirty years, it would be a big improvement on the original products.

The main problem with all these ideas is that the complexity of the deconstruction and collection of the primary article may prove to be too expensive to carry out. Ideas that could offer some sort of financial incentive include the recovery of useful protein from the leather. In order to be able to use the original protein in the hide, the tanning process would need to be undone or reversed. The method for doing this would depend on the type of tannage used in the first place but it can be done.

This could apply to leather waste from all stages of the process. One barrier to the success of such a process is that it will be extremely difficult to separate the leather from other materials used in the original shoe or seat. Some progress has been made towards achieving this, but so far the leather is only reaching purity levels of around 95%. This may well be enough for some potential uses, but perhaps not for the protein extraction.

Having previously mentioned the cost of some of these ideas, when looking for potential solutions we need to bear in mind that it is almost certain that the cost of landfill will rise at a much higher rate than inflation and that restrictions on the items allowed to go to landfill will continue to increase.

At the end of 2017, both India and Chinese indicated they would restrict their imports of waste from the developed world, a step which will certainly drive up costs as it will mean disposal will have to take place in the country of source. Consumers are also becoming more conscious of the need to clean up the planet and at least some of them are prepared to pay more for articles that are more considerate of the environment.

The issue of end-of-life recycling will pose many challenges to those throughout the leather supply chain. It would be much better to tackle these challenges now and take the necessary steps before any outside legislation is imposed. 🌱

The European automotive industry is facing growing regulations related to end-of-life recycling. This will inevitably have an impact on the leather supply chain. IMAGE: ASTON MARTIN

