

SmiTools - Simplicity

'Post-tanning made simple & sustainable'

Simplicity: 'Post-tanning processes made simple & sustainable'

Making leather is no longer the art it once was. Leather makers now have to comply with such a vast amount of legislation and other regulations that the actual process of producing leather has been effectively sidelined.

Simplicity is a concept for reducing the complexity at the heart of your operations: the leather-making process itself. Simplicity is an approach developed by Smit & zoon to simplify and boost the efficiency of post-tanning operations. The concept demonstrates conclusively that by rethinking and simplifying conventional processes, leathers can still be made to meet every demand in terms of looks, handling and other properties.

Simplicity means a helping hand in your quest for lean and sustainable processes as well as for an environmentally-friendly stamp on the leathers you produce – thanks to a measurable saving in water and energy use.

Adopting the Simplicity approach will ultimately lead to a reduction in costs and demonstrate you are a sustainable producer who is modernising your working methods out of consideration for the environment.

How does the tanner benefit from Simplicity?

Simplicity helps the leather-producing industry to adapt traditional practices and change them into more environmentally-friendly processes.

Simplicity reduces the risk of mistakes when chemicals are added during post-tanning processes by reducing their complexity. The process involves fewer steps and is safer for operators because there is less handling involved on the busy factory floor.

What is the driving force for Simplicity?

The drive for Simplicity comes from our personal desire to ensure a clean and healthy environment for everyone to live in, without compromising on leather quality or increasing operational costs. The small-scale trials carried out at Smit & zoon's Leather Service Centre show we can achieve considerable savings in terms of water and energy use by carefully shortening the processes.

Simplicity dovetails with Smit & zoon's mission to take responsibility and to contribute in our own way to the sustainable conservation of nature and our environment.

The running times, processing at higher drum speeds, and substantial amounts of water traditionally used during post-tanning operations have an impact on a tannery's total energy and water consumption. At Smit & zoon we believe we have to face today's challenges and to act on them. As a dedicated partner to the leather industry, we are taking our responsibilities seriously – for all people, our planet, and your profit.

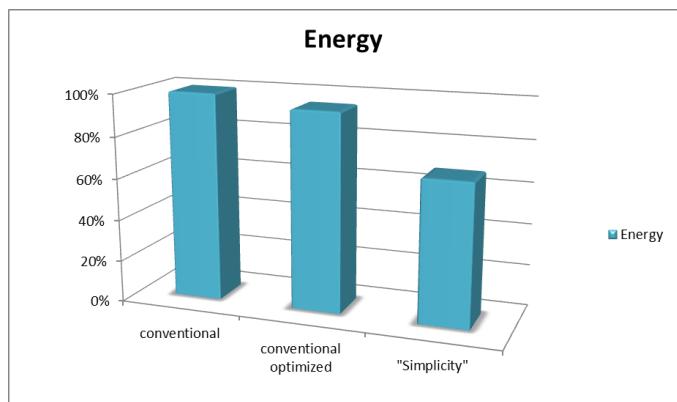
The Simplicity concept supports the requirements of the Leather Working Group's (LWG) Protocol 6 auditing process, which state water and energy saving measures are of particular importance in qualifying for the highest ratings.

Simplicity is also a reply to the European Commission's position on Best Available Technologies which will be applied at a European level. The Commission's recommendations for the use of short floats in all processes have been implemented in the Simplicity process by setting specific parameters for water usage.

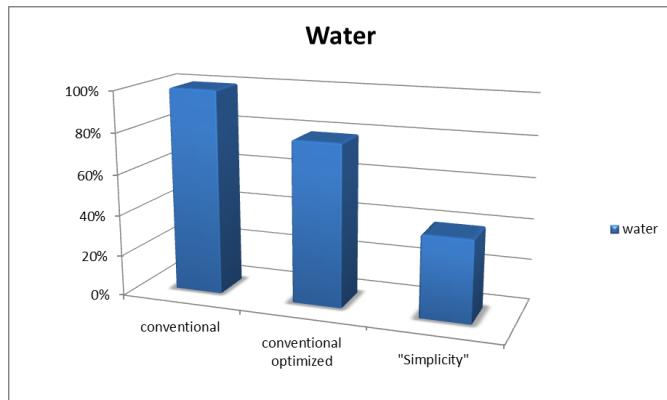
How much energy and water can be saved with Simplicity?

These graphs are based on the total amount of energy and water used during all steps of the process in small-scale experiments. The final results for processes applied to large-scale production will differ. Nevertheless, these results show that by implementing the Simplicity concept and rethinking your post-tanning operations, you can achieve genuine savings on the amount of water and energy used by conventional methods.

On average, we have achieved a 30 percent saving on total energy usage.



On average, we have achieved a 60 percent reduction in water usage.



How does the environment benefit from Simplicity?

The environmental impact of Simplicity processing is related primarily to real savings in water usage. The reduced water quantities and shorter overall running times require less energy for heating and therefore reduce the CO₂ footprint attached to the product as well.

The results shown here stem from a small-scale project but prove convincingly there is real potential to cut costs through reducing water and energy usage. We are now preparing a project to determine how great those savings can be in practice and are looking for partners to work with.

Can Simplicity reduce the costs?

The cost of water is still low in real terms but water prices are expected to rise gradually over the years. Experts estimate within the next 10 to 15 years water will be 1.75 to 2.5 times as expensive as it is today, and will become an increasingly important economic factor.

We will only be able to draw firm conclusions about the true cost savings in terms of water and energy use when we have carried out comparisons based on full-scale processes. Are you rethinking your working methods to increase sustainability and cut costs through working more efficiently? Smit & zoon would like to invite everyone who sees the benefits of moving forward to join us as partners in making Simplicity part of their daily operations.

What are the parameters for Simplicity?

Simplicity goes beyond the current recommendations made by government authorities and other bodies such as the LWG in terms of saving water and energy.

The current Smit & zoon parameters for the core post-tanning process are:

- Six hours running time (in-between washing cycles excluded)
- Two process steps.
- Short floats.
- Three retanning agents (acrylics excluded)
- Three fat liquors

These parameters can be applied to wet-blue leathers of the average commercially-available quality.

We have not included the washing cycles because their duration varies considerably from tannery to tannery and their impact needs to be calculated individually. Washing is always done as closed-door "batch washing". "Running-water washings" with an open draining lid are not considered best practice because of the large and uncontrolled quantities of water they use.

Rechroming: This is not an integral part of any post-tanning operation. If rechroming proves to be essential, the time it takes will need to be added to the total.

Acrylic retanning agents: These are not an integral part of any post-tanning operation. However, their use will not add to the maximum production time.

Will Simplicity work in practice, because ...

... thinner leathers may tear in short floats?

The rules for relating float length to thickness are unchanged in Simplicity processing. Thinner leathers require greater float lengths.

... short floats cause creases that remain visible?

The main causes of creasing are overloading the drum and unwanted downtime during processing. Wrong over-night piling is another cause. Simplicity processing will not lead to creases, providing modern equipment is used or existing equipment has been adapted to short floats.

... less washing and one-bath processes lead to uneven colour?

Dyeing depends on the choice and amount of the other chemicals used during the process. In particular, producers need to avoid using an excessive amount of retanning agents and make sure they only use products that are made of ingredients the leather benefits from.. Once these conditions are met, the short float improves the distribution of the applied products.

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... fixation in short floats leads to uneven colour?

Using a short float in itself does not lead to uneven dye processes. Uneven colouring is mainly caused by mistakes in the production process. The Simplicity process involves a longer float before fixation so there is more time for even dye distribution.

... the increased movement will cause frictional damage?

We do not recommend using short floats in certain cases involving sensitive materials. However, all the other parameters in the Simplicity program should still be applied.

... shorter floats require more, not less energy, to drive the vessel?

Using short floats entails starting and rotating less balanced process vessels. This does lead to an increase in electricity use but is counteracted by the shorter process and subsequent reduction in the amount of water being heated.

... short processes mean less time for fixation and thus cause a higher COD?

Using less water actually improves the way the fixation product is distributed in the leather. It boosts the conditions for optimal fixation and cuts the amount of unused product discharged in waste water – an additional environmental benefit.

Simplicity; a promising way of rethinking the tanning process

The results we have achieved through experiments at our Leather Service Centre are both promising and stimulating. We are convinced they demonstrate high potential for cutting costs through reducing the use of water, energy and processing time in your post-tanning processes.

To fully determine the positive effects of the Simplicity program we now need to establish and quantify its full impact in practice. So we are looking for a like-minded partner willing to work with us on taking our approach to the next level. Is your company concerned about boosting the sustainability of the leather processing industry and are you prepared to play a pioneering role?

Contact Smit & zoon and find out how your company can become part of a sustainable future for all people, our planet and your profit and how you can simplify your post-tanning processes.



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