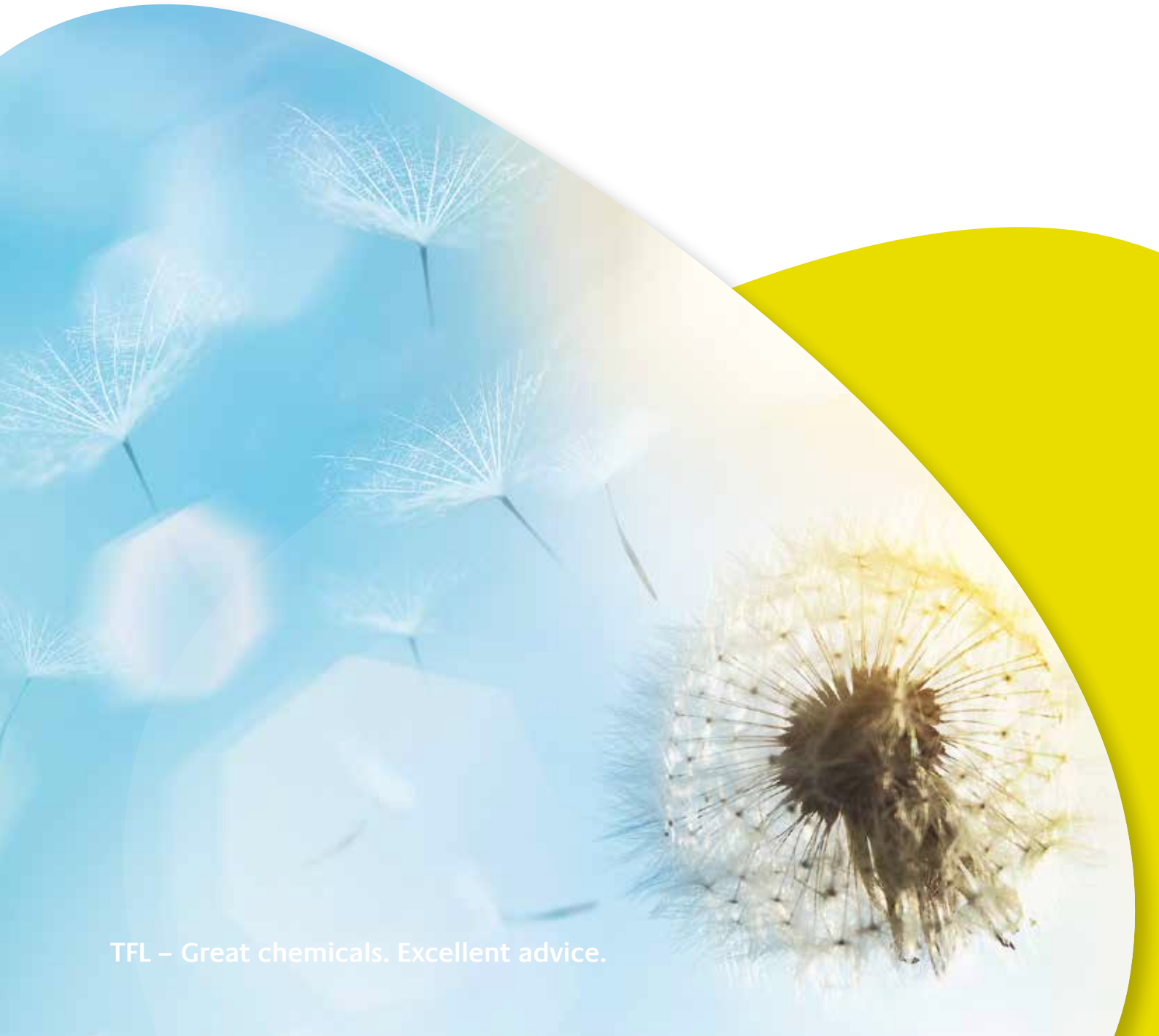




TFL LOW SULFIDE TEC **LS**

# Less is more

» Unhairing with significant reduction of sulfide



TFL – Great chemicals. Excellent advice.



# Take the next step to an eco-friendly beamhouse.

## Unhairing with reduced amount of Sulfide

The use of sulfides has always been the preferred way of unhairing in leather making despite problematic side effects such as bad odour, possible toxic gas release and safety issues in storage & handling.

Alternatives to replace sulfide have failed so far. In case of proteolytic enzymes it is the lack of selectiveness and in case of oxidative techniques the control of swelling and hide opening up which are still posing a challenge.

## New solutions from TFL:

### PELLVIT® LSG, ERHAVIT® LSU, ERHAVIT® LSC and ERHAVIT® LSR

TFL believes leather is a unique product and our mission therefore is to develop products which help tanners making leathers of highest possible quality in a most ecological way.

We proudly introduce the new unhairing system with the soaking product PELLVIT® LSG and the new liming products ERHAVIT® LSU, ERHAVIT® LSC and ERHAVIT® LSR. The products, which work in a synergistic way, substantially reduce the environmental impact of the unhairing process along with the possibility of producing leather with a maximum useable area and quality.

## Innovative soaking agent to optimise unhairing

PELLVIT® LSG is an innovative enzyme based soaking agent that effectively performs the soaking of all kinds of hides and skins without having a negative effect on the integrity of bellies and flanks.

At the same time the product improves the access of sulfide to the hair root in such a way that a low sulfide Hair Save unhairing process (as well as Hair Burn process) can be applied without hair-root and fine-hair problems. These properties are the base for proper unhairing with significantly reduced sulfide offer.

## Enzymatic unhairing auxiliary

ERHAVIT® LSU is a unique enzymatic unhairing and liming auxiliary. It is the ideal partner for PELLVIT® LSG to optimally support the unhairing effect of sulfide. The product weakens the epidermis and the pre-keratin of the hair-root selectively thus supporting fine-hair removal and cleanliness, particularly

in a Hair Save process. Opening-up of the hide-structure as well as the breakdown of proteoglycans and glycoproteins are promoted by the novel enzyme, ensuring a proper lay-out. Due to the selective character of ERHAVIT® LSU, grain, bellies and flanks are well 'protected'.

## Reductive unhairing auxiliaries

ERHAVIT® LSC is a reductive unhairing agent based on organic sulfides. It is especially designed to support ERHAVIT® LSU in unhairing of challenging hides. The product prepares the hair for loosening in the Hair Save unhairing process and improves the cleaning-out of the hair follicles.

ERHAVIT® LSR is a highly concentrated, low odour reductive unhairing agent based on organic sulfides and is free of nitrogen, inorganic sulfides and enzymes. Due to its high reductive power the product can partly or completely replace sodium sulfide and hydrosulfide.

## The major benefits of this innovative low sulfide unhairing technology are:

### + Ecology

Significant reduction of sulfide, sludge, COD and nitrogen in wastewater.

### + Product Design

Products are free of hazardous and restricted substances.



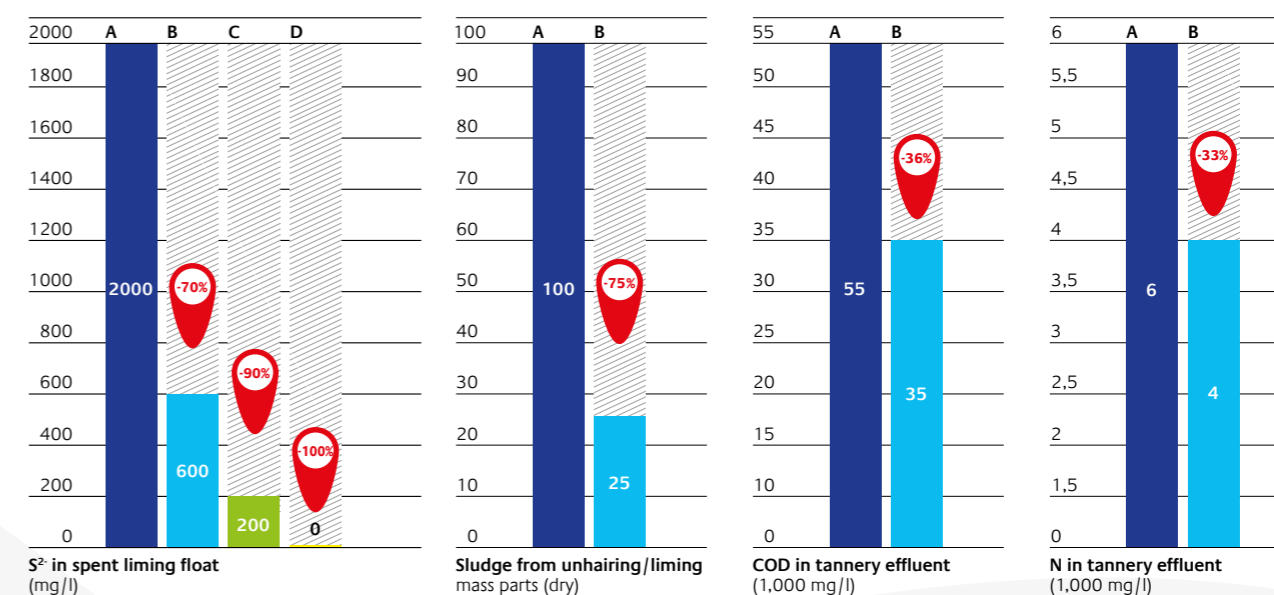
### + Safety

Lower risk of H<sub>2</sub>S creation due to reduced carry-over of sulfide to pickle float.

### + Performance

Clean well laid out hides with full flanks as an excellent base for maximum useable area (cutting yield).

## Low Sulfide – more efficiency



Sludge, COD and Nitrogen are all the same for process B, C, and D.

A: US brine cured hides, hair burn process, total offer of Na<sub>2</sub>S (60%): 2.5%  
 B: US brine cured hides, hair save process, total offer of Na<sub>2</sub>S (60%): 1.0%

C: US brine cured hides, hair save process, total offer of Na<sub>2</sub>S (60%): 0.5%  
 D: US brine cured hides, hair save process, total offer of Na<sub>2</sub>S (60%): 0.0%



