



A wide spectrum of colour shades is possible using Lugafast Colorlock dyeing technology.

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COLOURFAST NUBUCKS AND SUEDES

Fashion trends come and go; colours, shapes and cuts change with the seasons. It is therefore good that some old favourites such as nubuck and suede leathers never change. They are extremely soft and have a velvety feel which many consumers prize above all others. Unfortunately, there is also a downside—as many footwear manufacturers and retailers know to their cost. .

Customers often complain of problems with colour transfer and the fact that these leathers quickly become shabby. Shoe manufacturers have struggled with the problem of them also leaving unsightly traces on other materials such as TPU, PVC and PU. They have also faced the problem that both nubuck and suede leathers have continued to be incompatible with solvent-based adhesives; that is until now.

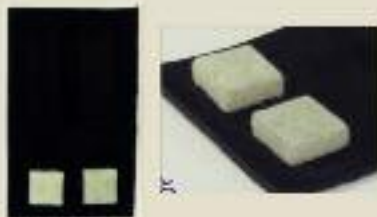
There are three fundamental aspects to the problems of colour transfer and poor abrasion with nubuck and suede leathers:

- Loss of dye due to migration – especially in damp conditions
- Transfer of buffing dust through frictional contact during processing
- Abrasion of leather particles through mechanical fibre breakage either during processing or in wear

A quantum leap has been made towards solving these problems with the new, patented Lugafast Colorlock technology, which ensures that dyestuff is fixed firmly and irreversibly to the collagen by covalent bonding. The problems caused by transfer of dyes are now a thing of the past for both shoe manufacturers and consumers.

Figure 1: Colour transfer test on conventional leather.

10–20 rub cycles

Figure 2: Colour transfer test on leather treated with Colorlock.

10–20 x rub cycles

In colour transfer tests, conventional leather (Figure 1) and leather treated with Lugafast Colorlock technology (Figure 2) show how effective this is. A certified rub fastness test according to DIN EN ISO 11640 clearly shows that after 10 to 20 rub cycles in the presence of a synthetic perspiration solution, the felt pad is badly stained by the normal leather but not by the leather treated with Colorlock. A close look at the cross-section also shows that, in the case of the conventionally produced leather, there has been migration and penetration of the dye into the pad. In the case of the Colorlock leather, it is only slightly stained even through the cross-section.

Leathers produced with the new technology also have a lower electrostatic charge during staking and milling. Buffed nubuck is therefore contaminated far less with the buffing dust that normally affects subsequent processing procedures.

There is also the problem of fibre breakage, where small particles (microfibrils) break off from the collagen fibres in large numbers when shoes made of nubuck or suede leather are being worn. No totally satisfactory solution to this problem has yet been found.

Figure 3: Crockmeter test for rub fastnessConventional
TechnologyLugafast Colorlock
Technology

Crockmeter 10 cycles dry

Manufacturers and customers can however look forward to some degree of relief as Colorlock has been shown to produce up to a 90% improvement in this respect. This has been demonstrated by dry rub fastness testing with what is known as the crockmeter test based on DIN EN ISO 105-X12 (Figure 3) that is widely used in the US and the UK.

Perspiration and wetness will of course not damage nubuck and suede leathers processed with Lugafast Colorlock technology as has been explained in earlier articles in this series. This again makes these materials more attractive to tanners, shoemakers and consumers.

Nubuck leathers are regularly used in conjunction with synthetic soling materials such as PVC, PU, TPU and EVA. This frequently involves direct injection moulding of the outsole to the upper which can lead to some real problems where the high temperatures present during processing often cause conventional leather dyes to bleed more quickly.

This becomes very apparent in fastness to migration tests using PVC (Figure 4). Leathers produced with Lugafast Colorlock technology contain irreversibly fixed dyes and are therefore the ideal solution to preventing troublesome dye problems even under extreme processing conditions.

Figure 4: PVC migration testLugafast Colorlock
TechnologyConventional
Technology

Some shoe manufacturers still use solvent-based sole attaching adhesives. These, however, can attack upper leather and dissolve the dyes in the material. The leather itself then fades and loses some of its colour, while the actual dye leaves unsightly traces on the sole. Leathers processed with the Colorlock system are highly resistant to solvents, so this problem is eliminated.

Both chrome and chrome-free leathers can be dyed with the new technology, so all the various nubuck and suede raw materials can be similarly treated. The type of raw stock and the form of tanning are also unimportant. The image at the head of this article shows just how varied the spectrum of Colorlock shades for nubuck leather now is. This opens fresh possibilities in combining fashion and design variations with outstanding comfort features but without problems. And, if this makes customers happy, it should certainly also please manufacturers and retailers. 🍷