

# Assessing animal print materials

The use of animal prints is once more gaining in popularity for footwear. Some of these materials need special care during the shoemaking process, as MARK SOUTHAM explains.

Since first gaining popularity in the 1960s, animals prints – such as leopard, tiger and zebra – have regularly enjoyed revivals in footwear design, usually on high fashion boots and shoes. These materials may be used as decorative trims or form the complete upper, as shown in figure 1.

The designs can be printed on resin-finished leathers, unfinished splits, hair-on leathers, textiles and coated fabrics. The use of hair-on leathers, unfinished leather splits and microfibre textiles have proved most popular in recent years.

## Printed hair-on leathers

Pony skins were originally used in the footwear industry as the base material for hair-on leathers printed to imitate patterned animal skin. Today, however, hair-on bovine leathers are normally used.

The main difficulty with these leathers is their susceptibility to shed hair, and losing the print. This can cause bald patches on the footwear, especially at vulnerable points on the upper – typically the inner counters, joints and toes. Therefore, it is very important to conduct abrasion tests on the materials in order to predict the risk of hair loss and the degree of print wear.

SATRA TM31:2003 (2014) – ‘Abrasion resistance – Martindale method’ is used to reproduce mild rubbing affecting hair-on leathers and is conducted under both wet and dry conditions. Any loss of printing should be noted, as this could lead to wearer dissatisfaction. Although we have found that hair is shed from leathers to some degree during the test (with some specimens, hair is shed more readily than others), the fact that the printing normally goes right down to the leather surface means that the pattern can still be seen. In general, performance

to this level is likely to be suitable for fashion footwear.

## Rub fastness of hair-free leathers

For leathers other than hair-on, SATRA TM8:2004 – ‘Colour fastness to circular rubbing’ (the normal rub fastness test for upper leathers) is recommended when assessing the print’s resistance to

being rubbed off during wear. It is conducted under wet conditions as well as dry, and reproduces the continuous mild rubbing that inevitably occurs during prolonged wear.

We advise that all hair-on and hair-free leather animal print materials meet our relevant performance recommendations for medium-use footwear.



Figure 1: Footwear with the complete upper in animal print



Figure 2: Testing colour fastness to water. In this example, the black zebra stripes have heavily stained the SATRA test material – a characteristic which would likely lead to complaints

## Problems with colour fastness

Both hair-on leathers and printed unfinished splits have presented examples of poor colour fastness. We recommend that these materials are tested for rub fastness with the SATRA TM8 or TM167:2017 – ‘Colour fastness to rubbing – crockmeter test’ methods, and also assessed for water fastness by SATRA TM335:2018 – ‘Colour fastness to water and perspiration’.

These tests will identify the likelihood of dye staining the wearers’ clothes or carpets and upholstery (see figure 2). They will also highlight the possibility of colour migrating from one area of the print to another – a risk that is, for example, of particular importance with the contrasting stripes on zebra prints. Many specimens we have seen have been quite poor in this respect, and this characteristic would likely lead to significant complaints.

We have also used SATRA TM160:1992 – ‘Colour fastness to light from a xenon arc’ to check for light fastness, under which most specimens appeared to perform satisfactorily. Nevertheless, new materials should be tested.

## Care when shoemaking

Particular consideration is needed in cutting and stitching rooms when working with leathers that feature an animal print. Care should be taken to match the print pattern and, where

applicable, the direction of the hairs on adjacent upper components.

Careful skiving or thickness reduction on the edges of the sections – preferably on the face side prior to stitching – is essential with hair-on leathers in order to adequately reduce the bulk to improve comfort and enhance the aesthetic finish. This action will also reduce the possibility of the hair surfaces slipping under the presser wheel during stitching. If available, reverse matrix skiving may be preferable for leathers which have dense or long hair. Whether skiving conventionally or using a matrix to remove the hair from the face side, care needs to be taken not to skive too deeply into the leather, which could significantly weaken it.

Stitchmarking is also likely to be problematic, because any marking will be made on the hairs and over different coloured prints. With hair-on leathers, it is better to stamp with ink than draw with a pen.

In order to avoid an untidy featheredge and ensure an optimum appearance on leathers with long hair, the length will need to be reduced as appropriate around the featheredge. This type of upper is difficult to clean and is easily damaged by many cleaning products, so shoe rooming, finishing and customer aftercare may also cause problems. It is imperative that the uppers are kept clean while the footwear is being manufactured and that all

stitchmarks are covered when the uppers are stitched together. Where the method of construction allows, it would be worthwhile covering the uppers with a plastic shrink-wrap cover to minimise damage and soiling of the upper during the lasting operation.

## Printed synthetics and textiles

Polyurethane (PU)-coated fabrics are a popular choice for women’s animal print footwear, with the coagulated types on a woven or nonwoven base most often being selected. The lightness, handle and low cost of these materials offer advantages over leather. Printed PU-coated fabrics are relatively easy to use, as no particular precautions are needed in shoe production other than matching up the pattern of the print.

As with leathers, tests for print loss and colour fastness are recommended when using printed synthetics and textiles, as colour transfer problems could well be encountered. Synthetic materials made to imitate suede tend to give more of a natural ‘animal’ appearance than the smooth-finished PU-coated fabrics. A variety of synthetic suedes are available for printing, with microfibre materials proving particularly popular.

With some types of synthetic suede, abrasion damage is a common cause of failure, so testing for abrasion resistance is very important. The SATRA TM31 Martindale abrasion test should be used, after which any loss of the ‘flock’, ‘pile’ or printing is assessed.

Although wearers of animal print footwear may be reasonably tolerant of pile and printing loss in the longer term, ‘bald’ patches which appear early in wear will undoubtedly lead to complaints. As with leather uppers, we recommend that materials meet our performance requirements for medium-use applications.

## How can we help?

Please email SATRA’s footwear testing team for assistance with the use of animal print materials on shoe and boot uppers.



[footwear@satra.com](mailto:footwear@satra.com)