

**Fading differences between different batches of blue wool light fastness standard 6 of DEK in tests according to ISO 105-B06 "Textiles - Tests for colour fastness - Colour fastness and ageing to artificial light at high temperatures: Xenon arc fading lamp test".**

Troisdorf, 27.10.2021

Based on feedback from users of ISO 105-B06 that DEK blue wool light fastness standard 6 from different batches has widely varying  $\Delta E$  values, DEK has been working very intensively on this issue for some time.

First of all, it should be noted that all DEK blue wool light fastness standards are checked for conformity to ISO 105-B08 standards prior to release and delivery. All batches on the market and in our stock comply with this standard.

However, when testing according to ISO 105-B08, the exposure conditions according to ISO 105-B02 are applied and not the exposure conditions according to ISO 105-B06 (hot exposure).

The reason for this is that the blue wool standards and ISO 105-B08 were developed in a time when hot exposure was still in the distant future.

All blue wool light fastness standards 6 were always dyed with the dye prescribed in ISO 105-B02 (CI Acid Blue 23) using always the same dyeing technology on always the same base material. However, the CI Acid Blue 23 dyes used were from different manufacturers (Ciba and Sandoz).

After all other possible causes in the dyeing process for the different fading behaviour (e.g. fluctuations in the water hardness of the process water, etc.) could be checked and excluded by us, one cause is to be sought in the fact that the dyes from Ciba and Sandoz, despite the same chemical structure, exhibit different fading behaviour during hot exposure.

Since November 2020, extensive investigations have been underway involving well-known testing institutes, equipment manufacturers and users of ISO 105-B06.

According to all available findings so far, not only the different batches of blue wool light fastness standard 6 seem to be relevant, but also differences in the applied equipment technology and in the handling during the test.

As far as the equipment technology is concerned already a corresponding formulation in ISO 105-B06 (excerpt from point 1 of the standard) can be found: „The five different sets of conditions using the different optical filter systems specified may produce different test results. Results from tests performed using different apparatus (instrument types) for the same set of conditions and optical filter system are not comparable because comparable performance has not been validated.“ In addition to this it is important to know that the filter systems of different device manufacturers differ from each other.

ISO 105-B06 leaves a lot of leeway with regard to different ways of handling the test. One of the topics we are currently working on is therefore concerned with drawing up more precise instructions for action.

Strict temperature management is of particular importance. From previous investigations we know that the blue wool light fastness standard must not be warmer than 100 °C, because otherwise a so-called "Yellowing" occurs and the obtained results are not reproducible.

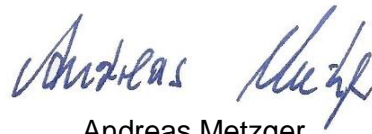
Due to Corona pandemic and the associated restrictions and delays in production, laboratory operation and communication, we have not yet found a satisfying solution and are therefore unable to make any recommendations for action at the present time.

We hope to go public with the resulting findings by the end of 2021/early 2022.

Whether, when and in what form our findings will be implemented in standardization can be suggested by the DEK, but it is the complete DIN NA 062-05-11 AA (Colour fastness of textiles) that must decide on this at national level and ISO TC 38 / SC 1 at international level.



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