

### **Compliance of the grey scale with the standard as per ISO 105-A02 and A03**

Since 1 August 2016, DAkKS has tightened the requirements for metrological traceability in the context of the accreditation process (see <http://www.dakks.de/content/merkblatt-zur-metrologischen-r%C3%BCckf%C3%BChrung-im-rahmen-von-akkreditierungsverfahren>).

We are continually asked to what extent this affects the test materials we market. We take the following view in this regard.

We consider the A02 and A03 grey scales marketed directly by us or through our distribution partners Beuth Verlag Berlin or Testex GmbH & Co. KG Bad Münstereifel as reference materials in the sense of point 5 paragraph 3 of the DAkKS document “Technical Note for the Metrological Traceability in the Accreditation Process 71 SD 0 005, Revision 1.4, 1 February 2016”.

On the basis of certificates, we confirm the grey scales sold by us comply with the standard, as long as their origin can be clearly assigned to the DEK. The certificates are based on test reports from DAkKS-accredited testing institutes.

The certificates which contain an excerpt from the test report can be downloaded per batch from our homepage. Upon request, we will also send you the complete test report. Please note that traceability is only given if you also have proof of purchase (invoice).

In this context, we are of the opinion that our grey scale corresponds to point 5 paragraph 3 of the DAkKS technical note cited above.

With the stricter DAkKS requirements, our grey scales are regularly measured by the users and their compliance with DIN EN 20105-A02 and A03 is checked.

Unfortunately, in ISO 105-A03, no tolerance is given for the colour value Y (in contrast to ISO-105 A02). As German delegation on behalf of DIN, we signalled this error during the last ISO meeting in October 2017 in New Orleans and initiated a corresponding revision.

The current status is given in the following (excerpt from the minutes of the ISO meeting):

„Outline for a NWIP “Minor Revision of ISO 105-A03” based on ISO/TC38/SC1 Doc. N2909 and resolution 2017/8 from the ISO/TC38/SC1 meeting in New Orleans as suggested programme of work.

### German proposal to introduce tolerance values for the value of Y tristimulus in ISO 105-A03

ISO 105-A02 (Grey scale for assessing change in colour) defines with sentence 2.3 a value of  $12 \pm 1$  for the Y tristimulus value of the first member of each pair of the grey chips.

In opposite to that ISO 105-A03 (Grey scale for assessing staining) defines in sentence 2.3 *“The Y tristimulus value of the first member (white) of each pair shall not be less than 85”*.

From our point of view this makes no sense, because e.g. a value of 95 for Y would be also according ISO 105-A03 but with a total different visual appearance and the potential to cause problems in visual assessing staining.

Our suggestion is to introduce the same tolerance of  $\pm 1$  for the Y tristimulus value into A03 like already defined in A02.

Sentence 2.3 of ISO 105-A03 should be then: *“The Y tristimulus value of the first member (white) of each pair shall be  $85 \pm 1$ ”*.

If agreed upon between the experts in WG7 the suggestion could be directly introduced into the standard as minor revision.“

The international vote ended on 19.03.2018. An overwhelming majority accepted the German proposal (document ISO / TC38 / SC1 N2949 of 19.03.2018). ISO 105-A03 and DIN EN 20105-A03 are now being changed as part of a minor revision.

In addition, there are formulation differences between the English original version of ISO 105-A03 and DIN EN 20105-A03. In ISO 105-A03, the following is stated in section 2.3 *“The Y tristimulus value of the first member (white) of each pair shall not be less than 85”*.

In DIN EN 20105-A03, however, the following is stated in section 2.3 *“The standard colour value Y of the first, always white section of each pair is 85.”* This condition *“... is 85.”* is practically incommensurable with colorimetric measurements, since no measuring tolerances are taken into account.

We therefore urge you to consider the above statements during the in-house review of the compliance of our grey scales with the standard.

As part of the in-house review of compliance with the standard, alleged deficiencies are also claimed.

For example, it is claimed that a narrow overlap strip is visible between the two grey keys of a pair, which interferes with the evaluation. This band is, indeed, visible during non-compliant visual observations.

However, no overlap strip is visible during standard-compliant visual observations (standard light D65, ambient colour near Munsell N 5, grey scale and samples placed at 45°, overhead view at 90°). Incidentally, this overlap is production-related and intentional. It is to avoid a white strip from forming between the grey keys, which would actually make a visual assessment difficult.

Other alleged defects are “intermittent unevenness” in the grey keys (which, however, is only visible at very high magnification, but not during standard-compliant visual comparisons), “notches” in the grey masks, foreign fibres trapped in the grey keys, minimal “adhesiveness” to the adhesion sites, etc.

It should be noted that each grey scale undergoes a visual inspection prior to shipment. Grey scales with defects that may affect usability are sorted out. This does not apply to alleged deficiencies, like those described above.

At this point, we would like to emphasise that, in the interest of quality, our reference materials are produced entirely and exclusively in Germany. This fact, our auditing and monitoring efforts, and the preservation of our more than 100 years of worldwide valued know-how result in costs that are reflected in the price of our reference materials.

If, despite every effort, certain grey scales are not standard-compliant, we will, of course, provide a free replacement without any fuss.

One more comment on the colorimetric verification of compliance with the standard. It is important to comply with the measurement conditions defined in the standards. So far, all of our grey scales, including those with the above-mentioned, supposed defects, could be measured colorimetrically without any problems.

More information can be found in the technical note “Important information on the durability and handling of our reference materials to determine colour fastness”.

You will find the entire range of DEK auxiliaries with all the necessary information as well as the contact addresses of sales partners on the DEK GmbH website.

[www.farbechtheit.info/dek\\_gmbh.html](http://www.farbechtheit.info/dek_gmbh.html)