

Information on the use of blue wool reference materials in exposure tests according to the ISO 105-B series using xenon arc light

DEK manufactures blue colour fastness reference materials made of wool. These are high-quality standard reference materials for determining the fastness of dyes and printing to light and weathering.

All batches of colour fastness reference materials produced by DEK are monitored for compliance with ISO 105-B08 by an independent testing institution accredited according to ISO 17025 before being approved and accepted for warehousing.

All blue reference materials offered on the market by DEK fulfil the requirements of these standards – in particular Type 6, which is also used to test fastness and ageing to artificial light at high temperatures according to DIN EN ISO 105-B06.

To preserve their compliance with standards, all reference materials are packed in lightproof foil and stored in a completely darkened, climate-controlled room. The warehouse stocks are regularly checked for their compliance with standards.

In order to obtain comparable, repeatable results when using these reference materials to test for conformity to standards, it is absolutely essential to strictly observe the test parameters and framework conditions specified in the relevant test specifications.

Attention should be paid to the following points in particular:

- The sample cards used to hold the reference materials in place must be free from optical brighteners.
- Under no circumstances should the entire surface of the test specimens and reference materials be glued to the sample cards. Instead, they should be turned over and glued on the reverse side with a solvent-free adhesive (e.g. white glue).
- All unused sample holders on the device must also be equipped with sample cards and covered on one side to avoid undesirable reflections.
- A further crucial factor is the time at which the samples and reference materials are evaluated. In order to rule out photochromism effects, these must be stored in darkness at room temperature (preferably standard climate) for at least 24 hours before assessment.

When carrying out tests for fastness and ageing to artificial light at high temperatures according to ISO 105-B06 or the test specifications of motor vehicle manufacturers, the following additional points should be borne in mind:

- The fading of the blue wool reference material no. 6 takes place reliably with a radiation dose between 11.0 and 13.2 MJ/m² (broadband measurements). The same applies to a maximum radiation dose of 14.0 MJ/m² when applying the special requirements of the motor vehicle industry.

DEUTSCHE ECHTHEITSKOMMISSION e.V.

(German Colour Fastness Committee)



Working Committee NA 062-05-11 AA • Colour fastness of textiles in DIN Deutsches Institut für Normung e.V., Berlin

- For each new test of colour fastness and ageing to artificial light at high temperatures, the fading of the blue wool reference materials must be checked under the relevant technical conditions of the device and surroundings, and the settings on the device adjusted accordingly. Taking over settings from previous tests without corresponding checks is not constructive.
- Since it is well known that wool has a tendency towards yellowing at higher temperatures, it is absolutely essential that the black standard temperature (SST) during testing is no more than 100°C.
- It is necessary to ensure that the reference materials, unlike the samples, are not additionally backed with fleece.
- To avoid the possible effects of covering during the test, the samples and the reference materials must be measured colorimetrically prior to exposure. The colour measurement must always be carried out on the same side of the sample or reference material.
- During the colour measurements, the samples or reference materials must be backed with a neutral background paper that has not been exposed to any ageing.
- Before final evaluation, the samples and reference materials must be stored for at least 24 hours in the dark and in a standard climate (20° C/65% RH).
- Compliance with all test parameters stipulated in the standard or the motor vehicle manufacturer's test specifications must be continually monitored to ensure that the test proceeds as uninterruptedly as possible, and that the endpoint of the exposure occurs within the radiation dose prescribed by the procedure used.

A handwritten signature in blue ink that reads 'Alexander Dietel'.

Alexander Dietel
President, DEK e.V.
Chairman, DIN NA 062-05-11 AA

A handwritten signature in blue ink that reads 'Andreas Metzger'.

Andreas Metzger
Managing Director, DEK e.V.
Deputy Chairman, DIN NA 062-05-11 AA

Note: The above requirements/recommendations are based on extensive comparative studies involving well-known test laboratories. Details of this can be found in the attached supplement.



DEUTSCHE ECHTHEITSKOMMISSION e.V.
(German Colour Fastness Committee)



Working Committee NA 062-05-11 AA • Colour fastness of textiles in DIN Deutsches Institut für Normung e.V., Berlin

Round robin test, blue wool type 6 DIN EN ISO 105-B06

Heat exposure: SST 100°C

3	D	D	D	D	D	A	CV3 durchgehend	A	CV1 durchgehend	CV2 durchgehend	A	CV1 nicht durchgehend	CV1 nicht durchgehend	CV2 nicht durchgehend	B	B	B	B
Geräte	Alpha	Alpha	Cl	Cl	Cl	Versuch2	Beta	Versuch 3	Beta	Beta	Versuch 1	Beta	Beta	Beta	Cl	Beta	Beta	Cl
Belichtungsdauer	51 Stunden	53 Stunden	53 Stunden	53 Stunden	55 Stunden	56 Stunden	59 Stunden	59 Stunden	60 Stunden	60 Stunden	60 Stunden	65 Stunden	68 Stunden	68 Stunden	69 Stunden	71 Stunden	76 Stunden	78 Stunden
Urtyp	3,83	4,10	4,22	4,12	4,14	4,10	4,21	4,10	4,89	4,29	4,74	4,83	5,14	4,95	5,00	4,54	4,74	4,87
KSL III 2230	4,65	4,76	4,39	4,71	4,77	4,32	4,61	4,43	4,57	4,40	4,73	4,35	5,23	5,30	5,62	5,34	5,79	5,32
KSL V 2230	4,34	5,00	4,62	4,82	4,45	4,32	4,71	4,40	4,51	4,50	4,60	5,11	5,39	4,80	5,44	5,90	5,34	5,37
berechnete Dosis (MJ/m ²) bei Bestrahlungsstärke (breitbandig) 60W/m ²	11,02	11,45					12,74		12,96	12,96		14,04	14,69	14,69		15,34	16,42	

