SLOVENSKI STANDARD
SIST-TP ISO/TR 18931:2011

01-julij-2011

Upodobitveni materiali - Priporočila za merjenje in nadzor vlažnosti

Imaging materials - Recommendations for humidity measurement and control

Matériaux pour l'image -- Recommandations pour le mesurage et le contrôle de l'humidité

Ta slovenski standard je istoveten z: **ISO/TR 18931:2001**

ICS:

37.040.20	Fotografski papir, filmi in fotografske plošče. Filmski zvitki	Photographic paper, films and cartridges

SIST-TP ISO/TR 18931:2011 **en**

TECHNICAL REPORT

ISO/TR 18931

First edition
2001-06-01

Imaging materials — Recommendations for humidity measurement and control

Matériaux pour l'image — Recommandations pour le mesurage et le contrôle de l'humidité

Reference number
ISO/TR 18931:2001(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out thorugh ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least seventy-five percent of the member bodies casting a vote.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this Technical Report may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TR 18931 was prepared by Technical Committee ISO/TC 42, *Photography.*

Introduction

Some tests in photographic International Standards are carried out at a specified temperature and relative humidity (RH). A typical test condition is 23 °C ± 1 °C and (50 ± 2) % RH.

Temperature is relatively easy to measure and control to within ± 1 °C. Accurate thermometers of several types, which have been calibrated by a national standards laboratory or by the vendor and traceable to a standards laboratory, are readily available.

Humidity is much more complex. Calibration by national standards laboratories can be expensive, and the relatively long turn-around time conflicts with the need for frequent recalibration of the most useful humidity sensors. Some instrument vendors are now providing calibration traceable to the National Institute of Standards and Technology (NIST) at moderate cost. In other situations, the standards user may wish to do his own calibration. It should be noted that calibration is complicated by the lack of useful reference points; relative humidities of 0 % and 100 %, for example, are not readily measurable. The accurate and precise determination of relative humidity is usually done indirectly and the results converted to relative humidity.

This Technical Report discussed devices used as hygrometers and humidistats in the measurement and control of relative humidity. The importance of relative humidity as opposed to other moisture parameters is discussed in annex A.

Imaging materials — Recommendations for humidity measurement and control

1 Scope

This Technical Report discusses devices in photographic standardization that are used as hygrometers and humidistats in the measurement and control of relative humidity (RH) in test chambers and storage areas. Special attention is given to situations where a photographic standard specifies controlling relative humidity to ± 2 % RH or better.

Electric hygrometers are recommended for their precision, low cost, and accuracy when properly calibrated. Calibration can be done either by the vendor or in-house by a dew-point measurement. Where the budget permits, dew-point combined with ambient temperature measurements (converted to relative humidity) may be the only sensor system.

2 Terms and definitions

For the purposes of this Technical Report, the following terms and definitions apply.

2.1
absolute humidity
mass of water vapour per unit volume of wet gas

NOTE It is a measure of the amount of water present as part of the chemical analysis of the space, i.e., how much water is availble for chemical activity.

2.2
accuracy
degree of conformity of a measurement to an accepted standard or ideal (true) value

2.3
desiccant
drying agent

2.4
dew-point
temperature to which moisture-laden air must be cooled to induce condensation

2.5
dry-bulb temperature
true temperature of the air at rest, i.e., the temperature as measured with ordinary instrumentation

2.6
frost-point
temperature to which moisture-laden air must be cooled for frost or ice formation

2.7
humidistat
device that senses the moisture content of the air for the purpose of controlling it