PD CEN/TR 17222:2019

BSI Standards Publication

Textile products and nanotechnologies - Guidance on tests to simulate nanoparticle release - Skin exposure

Documents
Document Sharing Hub

Full document details: PD CEN/TR 17222:2019

National foreword

This Published Document is the UK implementation of CEN/TR 17222:2019.

The UK participation in its preparation was entrusted to Technical Committee TCI/80, Chemical testing of textiles.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2019
Published by BSI Standards Limited 2019

ISBN 978 0 539 00416 8

ICS 07.120; 59.080.01

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 April 2019.

Amendments/corrigenda issued since publication

Date	Text affected

Documents
Document Sharing Hub

Full document details: PD CEN/TR 17222:2019

TECHNICAL REPORT

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

CEN/TR 17222

April 2019

ICS 07.120; 59.080.01

English Version

Textile products and nanotechnologies - Guidance on tests to simulate nanoparticle release - Skin exposure

Produits textiles et nanotechnologies - Guide d'essais de simulation de relargage de nanoparticules - Exposition à la peau

Leitlinien für Messverfahren für unterschiedliche Aufnahmewege für Nanopartikel - Hautaufnahme

This Technical Report was approved by CEN on 22 March 2019. It has been drawn up by the Technical Committee CEN/TC 248.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

© 2019 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. CEN/TR 17222:2019 E

Documents
Document Sharing Hub

Full document details: PD CEN/TR 17222:2019

Contents

Page

European foreword 3
1 Scope 4
2 Normative references 4
3 Terms and definitions 4
4 Nanoparticles in textile products 6
4.1 Textile manufacturing process 6
4.2 Application areas and products 6
4.3 Are nanoparticles released from nanotextiles? 9
4.4 Health impact 9
5 Tests to simulate nanoparticle release 9
5.1 Release of nano-particles (Ag and TiO_2) from textiles into artificial perspiration solution under physical stress 9
5.2 Release of nano-particles from textiles using linting method (mechanical action) 10
5.2.1 General 10
5.2.2 Particle analysis 10
Bibliography 14

Documents
Document Sharing Hub
Full document details: PD CEN/TR 17222:2019

European foreword

This document (CEN/TR 17222:2019) has been prepared by Technical Committee CEN/TC 248 "Textiles and textile products", the secretariat of which is held by BSI.

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

Documents
Document Sharing Hub

Full document details: PD CEN/TR 17222:2019

1 Scope

The effects of synthetic nanoparticles on human health and the environment are still poorly understood and therefore uncertain. In particular, it is unclear in which areas nanoparticles-dose caused negative effects in the organism or in the environment (unknown dose-response relationship). The underlying toxicological mechanisms and possible effects of nanoparticle exposure over long periods of time are poorly understood.

In product advertisements on the Internet and in reports in international journals, especially the functional properties of "nanotextiles" are described. The type of integration of the nanoparticles in textiles is often described only sparsely. Therefore, the present document is based primarily on research studies that include information on the integration of the nanoparticles in the textile material.

The purpose of the present document is to give some guidance on tests to nanoparticle release. The determination of the release of nanoparticles could be performed either through quantification by chemical analysis (5.1), or by determining the linting (5.2), for example.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 105-C06, *Textiles — Tests for colour fastness — Part C06: Colour fastness to domestic and commercial laundering (ISO 105-C06)*

EN ISO 105-E04, *Textiles — Tests for colour fastness — Part E04: Colour fastness to perspiration (ISO 105-E04)*

EN ISO 9073-10, *Textiles — Test methods for nonwovens — Part 10: Lint and other particles generation in the dry state (ISO 9073-10)*

CEN ISO/TS 80004-1:2015, *Nanotechnologies — Vocabulary — Part 1: Core terms (ISO/TS 80004-1:2015)*

CEN ISO/TS 80004-2:2017, *Nanotechnologies — Vocabulary — Part 2: Nano-objects (ISO/TS 80004-2:2015)*

ISO/TS 18110:2015, *Nanotechnologies — Vocabularies for science, technology and innovation indicators*

ISO 19430:2016, *Particle size analysis — Particle tracking analysis (PTA) method*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/TS 18110, ISO 19430, CEN ISO/TS 80004-1:2015 or CEN ISO/TS 80004-2:2017and the following apply.

NOTE They are repeated here for context and better understanding.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

Documents
Document Sharing Hub

Full document details: PD CEN/TR 17222:2019