INTERNATIONAL STANDARD

ISO 12127-1

Second edition
2015-12-15

Clothing for protection against heat and flame — Determination of contact heat transmission through protective clothing or constituent materials —

Part 1: Contact heat produced by heating cylinder

Vêtements de protection contre la chaleur et la flamme — Détermination de la transmission thermique par contact à travers les vêtements de protection ou leurs matériaux constitutifs —

Partie 1: Transmission thermique par contact produite par un cylindre chauffant

Reference number
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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 through 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

ISO 12127-1 was prepared by Technical Committee ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 13, *Protective clothing*, and by Technical Committee CEN/TC 162, *Protective clothing including hand and arm protection and lifejackets* in collaboration.

This second edition cancels and replaces the first edition (ISO 12127-1:2007), of which it constitutes a minor revision. The following changes have been made:

a) title, for better comprehension;

b) alphabetical order, "Terms and definitions";

c) modified clause for "Heating cylinder" regarding example and pictures;

d) modified clause for "Calorimeter" regarding more detailed information;

e) modified clause for "Assembly" regarding speed and picture;

f) latest standard numbers in clause "Test report";

g) new Annex A for "Best practices for cleaning the heating cylinder";

h) new Annex B for "Determination of property values for rating and classification".

ISO 12127 consists of the following parts, under the general title *Clothing for protection against heat and flame — Determination of contact heat transmission through protective clothing or constituent materials*:

— *Part 1: Contact heat produced by heating cylinder*

— *Part 2: Test method using contact heat produced by dropping small cylinders*

Introduction

Protective clothing designed to protect against heat and flame can be exposed to direct contact with hot substances or hot surfaces.

The diversity of such contact conditions makes it difficult to evaluate the hazards that can arise from high temperature.

The test method described in this part of ISO 12127 allows this heat transfer to be assessed when a heating cylinder and the clothing material are brought into contact with each other.

This part of ISO 12127 forms part of a series of standards concerned with clothing designed to protect against heat and fire.

Clothing for protection against heat and flame — Determination of contact heat transmission through protective clothing or constituent materials —

Part 1: Contact heat produced by heating cylinder

1 Scope

This part of ISO 12127 specifies a test method for the determination of contact heat transmission. It is applicable to protective clothing (including hand protectors) and its constituent materials intended to protect against high contact temperatures.

Application of this part of ISO 12127 is restricted to contact temperatures between 100 °C and 500 °C.

2 Terms and definitions

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

2.1
contact force
force acting on the test specimen and the calorimeter when they have been brought into contact with the heating cylinder

2.2
contact temperature
T_c
surface temperature of the contact area of the heating cylinder, this temperature being kept constant

2.3
rate of contact
relative speed with which the heating cylinder and the calorimeter with the test specimen are brought into contact with each other

2.4
start of timing
moment when the upper surface of the calorimeter and the bottom edge of the heating cylinder are within 10 mm of each other

2.5
threshold time
t_t
time between the start of timing and the moment when the temperature of the calorimeter is 10°C above its starting value

3 Principle

The heating cylinder is heated to and maintained at the contact temperature and a test specimen is placed on the calorimeter. The heating cylinder is lowered onto the test specimen supported by the calorimeter or, alternatively, the calorimeter with the specimen is lifted up to the heating cylinder. In either case, the operation is carried out at a constant speed. The threshold time is determined by monitoring the temperature of the calorimeter.