IEC 61482-1-1

Edition 2.0 2019-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Live working – Protective clothing against the thermal hazards of an electric arc – Part 1-1: Test methods – Method 1: Determination of the arc rating (ELIM, ATPV and/or EBT) of clothing materials and of protective clothing using an open arc

Travaux sous tension – Vêtements de protection contre les dangers thermiques d'un arc électrique –
Partie 1-1: Méthodes d'essai – Méthode 1: Détermination de la valeur assignée d'arc (ELIM, ATPV et/ou EBT) des matériaux pour vêtements et des vêtements de protection utilisant un arc ouvert

IEC 61482-1-1:2019-07(en-fr)

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Part 1-1: Test methods – Method 1: Determination of the arc rating (ELIM, ATPV and/or EBT) of clothing materials and of protective clothing using an open arc

FOREWORD

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International Standard IEC 61482-1-1 has been prepared by IEC technical committee 78: Live working.

This second edition cancels and replaces the first edition published in 2009. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

– addition of the *Incident energy limit* (*ELIM*) as a further *arc rating* performance property value;
– replacement of char length requirement in the scope by indication that Procedure A is applicable for testing of *material*s meeting the limited flame spread requirements of IEC 61482-2;

– clarification of the definition and the meaning of the *Stoll curve*;

– modification of specification of positioning of *monitor sensor*s with respect to the *electric arc* as function of intended high *incident energy* exposure of test specimens;

– modification of specifications of *monitor sensor* construction;

– specification of black paint;

– elimination of *calorimeter*s from the chest of the mannequin;

– specification for possible positioning of mannequin(s) at a height different from the centre of the *electric arc* and possible turning in order to adequately expose all parts of the *garment* or clothing which would affect performance;

– more explicit description of requirements for data acquisition system;

– preconditioning of the samples;

– modification of requirements for apparatus and arc exposure verification by *bare shot*s;

– more explicit description of test procedures A and B, in particular the subclauses dealing with “sequence of test”, “test parameter” and “test criteria”;

– addition of determination of *arc rating* values of *garment*s and/or *garment* assemblies.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
78/1256/FDIS	78/1262/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

In this standard terms defined in Clause 3 appear in *italics.*

A list of all parts in the IEC 61482 series, published under the general title *Live working – Protective clothing against the thermal hazards of an electric arc*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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LIVE WORKING – PROTECTIVE CLOTHING AGAINST THE THERMAL HAZARDS OF AN ELECTRIC ARC –

Part 1-1: Test methods – Method 1: Determination of the arc rating (ELIM, ATPV and/or EBT) of clothing materials and of protective clothing using an open arc

1 Scope

This part of IEC 61482 specifies test method procedures to determine the *arc rating* of *flame resistant* clothing *materials* and *garments or* assemblies of *garment*s intended for use in clothing for workers if there is an *electric arc* hazard.

An *open arc* under controlled laboratory conditions is used to determine the values of $ELIM$, $ATPV$ or EBT of *material*s, *garment*s or assemblies of *garment*s.

NOTE 1 The user can, if he desires, classify the arc protective performance into *arc rating* protection levels based on $ELIM$, $ATPV$ and/or EBT values which correspond best to the different hazard and risks levels that can result from the user's risk analysis.

NOTE 2 This document is not dedicated to classifying the arc protective performance of the *material* and clothing into arc protection classes. Procedures determining these arc protection classes APC1 and APC2 are specified in IEC 61482-1-2, which uses a constrained arc for testing.

NOTE 3 This test method is not intended and not appropriate to evaluate whether *material*s or *garment*s are *flame resistant* or not, as this is covered in IEC 61482-2.

Other effects than the thermal effects of an *electric arc* like noise, light emissions, pressure rise, hot oil, electric shock, the consequences of physical and mental shock or toxic influences are not covered by this document.

Protective clothing for work intentionally using an *electric arc*, e.g. arc welding, plasma torch, is not covered by this document.

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.

IEC 60584-1, *Thermocouples – Part 1: EMF specifications and tolerances*

IEC 61482-2:2018, *Live working – Protective clothing against the thermal hazards of an electric arc – Part 2: Requirements*

ISO/IEC 17025:2017, *General requirements for the competence of testing and calibration laboratories*

ISO/TR 11610, *Protective clothing – Vocabulary*

ISO 11612:2015, *Protective clothing – Clothing to protect against heat and flame – Minimum performance requirements*