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Protective clothing — Determination of behaviour of materials on impact of small splashes of molten metal

Vêtements de protection — Détermination du comportement des matériaux au contact avec des petites projections de métal liquide

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 9150 was prepared by Technical Committee ISO/TC 94, *Personal safety — Protective clothing and equipment.*

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Protective clothing — Determination of behaviour of materials on impact of small splashes of molten metal

0 Introduction

Clothing designed to protect the wearer against small splashes of molten metal is often submitted to high thermal loads. This International Standard forms a part of a series concerned with clothing designed to protect against heat and fire.

The diversity of the conditions in which splashes of molten metal may come into contact with materials used for protective clothing makes it difficult to evaluate the hazards that may arise under conditions of use.

Experience has shown that the most important protective function is resistance to heat transfer, through the protective clothing, from molten metal drops which impinge on but bounce off the clothing surface.

The test method described in this International Standard allows this heat transfer to be assessed.

1 Scope and field of application

This International Standard specifies a test method designed to evaluate the behaviour of materials used for protective clothing when such materials are struck by small liquid metal splashes, especially when molten steel particles are projected against the material.

It applies to any pliable material, or assembly of materials, designed to protect workers against small splashes of molten metal.

The results obtained by this method enable the behaviour of different materials which have undergone this test under standardized conditions to be compared. They do not permit conclusions with respect to contacts with large splashes of molten cast iron or other molten metal to be drawn, neither will they allow the behaviour of complete garments under industrial conditions to be predicted.

2 References

ISO 139, *Standard atmospheres for conditioning and testing*.

NF C 42-330, *Electrical measuring instruments — Platinum resistance temperature sensors — Reference table and tolerance*.

3 Definition and symbols

For the purposes of this International Standard, the following definition and symbols apply.

3.1 drop : A quantity of molten metal produced from the fusion of a metal rod by a welding torch, falling under the simultaneous action of its own weight and of the air movement produced by the welding torch.

3.2 Symbols

f	Frequency of drops, expressed as number of drops per minute.
m	Mass of a drop, expressed in grams.
ϱ_l	Linear density of the steel rods, expressed in grams per centimetre.
X	Number of 0,5 g drops, produced at the frequency of 20 per minute, required to raise the temperature of the sensor behind the test specimen by 40 K, the sensor temperature being within ± 2 K of ambient temperature at the beginning of the test.