
**Fibre ropes — Electrostatic surface
potential measuring method**

*Cordages en fibres — Méthode de mesure du potentiel
électrostatique de surface*





COPYRIGHT PROTECTED DOCUMENT

© ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	1
5 Test atmosphere	1
6 Apparatus	2
7 Preparation of specimens	4
7.1 Specimen diameter.....	4
7.2 Cutting.....	4
7.3 Splicing rope specimen.....	4
7.4 Conditioning of specimen.....	5
8 Testing procedure	5
8.1 Rope specimen setting.....	5
8.2 Measurement of surface potential generated by tribocharging.....	5
9 Test report	6
Annex A (normative) Verification procedure and correction factor	7
Annex B (informative) Example of test results	10
Annex C (informative) Information on the effect of parameters	12
Annex D (informative) Interlaboratory test	14
Bibliography	17

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared jointly by Technical Committee ISO/TC 38, *Textiles*, and Technical Committee IEC/TC 101, *Electrostatics*. The draft was circulated for voting to the national bodies of both ISO and IEC.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Heavy duty ropes can be made from metal wire or synthetic fibre or a combination of these two. Historically, fibre ropes were commonly made of natural fibres such as cotton, flax, etc. Recently, synthetic fibres have been used to make heavy duty ropes. Synthetic fibre ropes are lighter and stronger than steel wire ropes and natural fibre ropes.

However, synthetic fibre can acquire electrostatic charge more easily compared to metal wire ropes or natural fibre ropes.

To overcome this disadvantage, different methods have been applied to the manufacture of synthetic fibre ropes, such as combining them with steel wire or blending with conductive yarn, etc. The development of such ropes has taken place without a standard procedure for evaluating their electrostatic propensity.

This document describes a test method that is used to determine tribocharging of fibre ropes by a specified charging mechanism.

This testing method may not be representative of all possible charging mechanisms that are found in use.

Fibre ropes — Electrostatic surface potential measuring method

1 Scope

This document specifies a method for determining the electrostatic charging propensity of fibre ropes by measuring the surface potential generated by tribocharging.

This document is not intended to be used to evaluate the safety of ropes for use in explosive atmospheres as safety also depends on application conditions.

The test method described in this document is only applicable to fibre ropes of diameter between 12 mm and 20 mm.

The result obtained using this test method is valid only for the charging mechanism and parameters described in the test method. Charging can be different in end-use applications.

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.

ISO 630-1, *Structural steels — Part 1: General technical delivery conditions for hot-rolled products*

ISO 1968, *Fibre ropes and cordage — Vocabulary*