
**Polyethylene pipes and fittings for the
supply of gaseous fuels or water —
Training and assessment of fusion
operators**

*Tubes et raccords en polyéthylène pour le transport de combustibles
gazeux — Formation et évaluation des opérateurs de soudage*



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS

© ISO 2005

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Training organization	2
5 Training	3
6 Assessment	7
7 Periodic operator certificate renewal	7
Annex A (normative) Examination	9
Annex B (normative) Tear test for polyethylene (PE) saddle assemblies	10
Bibliography	13

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

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.

ISO/TR 19480 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 4, *Plastics pipes and fittings for the supply of gaseous fuels*.

Introduction

The quality of a piping system for the supply of gaseous fuels or water is to a large extent determined by the skills of the operators involved in installing the network. When installing polyethylene (PE) pipes, the quality of the fusion joints is essential for the piping system.

Since fusion joints in PE piping systems can be made using various technologies, it is important that the fusion operators are trained and competent in the fusion technology employed in constructing PE networks.

Continued competence of the fusion operator is covered by periodic re-training and re-assessment.

This document is a preview generated by EVS

Polyethylene pipes and fittings for the supply of gaseous fuels or water — Training and assessment of fusion operators

1 Scope

This Technical Report gives guidance and other provisions for the training, assessment and approval of fusion operators, with the aim of establishing and maintaining their competency in the construction of polyethylene (PE) piping systems for the supply of gaseous fuels in accordance with ISO 10839, for the supply of water, or in the construction of such systems used in other pressure applications. It covers the butt fusion, electrofusion and socket fusion jointing techniques and considers both the theoretical and practical knowledge necessary for making high-quality fusion joints.

2 Normative references

The following referenced documents are indispensable for the application 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 4427, *Polyethylene (PE) pipes for water supply — Specifications*

ISO 4437, *Buried polyethylene (PE) pipes for the supply of gaseous fuels — Metric series — Specifications*

ISO 8085-1, *Polyethylene fittings for use with polyethylene pipes for the supply of gaseous fuels — Metric series — Specifications — Part 1: Fittings for socket fusion using heated tools*

ISO 8085-2, *Polyethylene fittings for use with polyethylene pipes for the supply of gaseous fuels — Metric series — Specifications — Part 2: Spigot fittings for butt fusion for socket fusion using heated tools and for use with electrofusion fittings*

ISO 8085-3, *Polyethylene fittings for use with polyethylene pipes for the supply of gaseous fuels — Metric series — Specifications — Part 3: Electrofusion fittings*

ISO/TS 10839:2000, *Polyethylene pipes and fittings for the supply of gaseous fuels — Code of practice for design, handling and installation*

ISO 12176-1, *Plastics pipes and fittings — Equipment for fusion-jointing polyethylene systems — Part 1: Butt fusion*

ISO 12176-2, *Plastics pipes and fittings — Equipment for fusion jointing polyethylene systems — Part 2: Electrofusion*

ISO 13953:2001, *Polyethylene (PE) pipes and fittings — Determination of the tensile strength and failure mode of test pieces from a butt-fused joint*

ISO 13954:1997, *Plastics pipes and fittings — Peel decohesion test for polyethylene (PE) electrofusion assemblies of nominal outside diameter greater than or equal to 90 mm*

ISO 13955:1997, *Plastics pipes and fittings — Crushing decohesion test for polyethylene (PE) electrofusion assemblies*