

INTERNATIONAL
STANDARD

ISO
13577-3

First edition
2016-09-15

**Industrial furnaces and associated
processing equipment — Safety —**

**Part 3:
Generation and use of protective and
reactive atmosphere gases**

Fours industriels et équipements associés — Sécurité —

*Partie 3: Génération et utilisation des gaz d'atmosphère protectrice et
réactive*



Reference number
ISO 13577-3:2016(E)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, 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
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	2
3 Terms and definitions	3
4 Safety requirements and measures	5
4.1 General	5
4.2 Pipework	5
4.2.1 General	5
4.2.2 Connections	6
4.2.3 Unconnected pipework	6
4.2.4 Galvanic cells	6
4.2.5 Flexible tubing and couplings	6
4.2.6 Marking of pipework	7
4.2.7 Soundness/Tightness	7
4.2.8 Condensate drains	7
4.2.9 Purge points	7
4.2.10 Blow-off and breather pipes or conduits	8
4.2.11 Pressure relief devices and flame arrestors on pipework	8
4.2.12 Pressure oscillations	8
4.2.13 Combustible gas by-pass	8
4.2.14 Isolation of required safety devices	8
4.2.15 Vents	8
4.3 Required safety devices	9
4.3.1 Atmosphere gas control equipment	9
4.3.2 Other safety devices	12
4.4 Requirements for the use of atmosphere gases	12
4.4.1 Prevention of potential ignitable atmospheres	12
4.4.2 Monitoring of TPE doors movements	14
4.4.3 Supervision of the means of ignition at the point of combustible atmosphere gas discharge	14
4.4.4 Emergency safety purge	14
4.5 Change of atmosphere	15
4.5.1 General	15
4.5.2 Purge with purge gas	15
4.5.3 Purge with self-ignition	16
4.5.4 Change of atmosphere by burning	16
4.5.5 Purge by evacuation	17
4.6 Interfaces to exhaust systems for combustible or toxic atmosphere gases	17
4.6.1 Exhaust of burned gases	17
4.6.2 Gathering of gases without burning and a closed system	18
5 Additional requirements for the generation of atmosphere gases	18
5.1 General	18
5.2 Gas and process liquid supplies	18
5.2.1 Air supplies	18
5.2.2 Reaction mixture supplies	19
5.2.3 Generated atmosphere gas distribution	19
5.3 Flame detection	19
5.4 Burners generating exothermic gases	19
5.5 Special requirements for different types of generator	19
5.5.1 Requirements for endothermic generators	19
5.5.2 Requirements for exothermic generators	20