

---

---

**Reaction-to-fire tests — Heat release,  
smoke production and mass loss  
rate —**

Part 5:  
**Heat release rate (cone calorimeter  
method) and smoke production  
rate (dynamic measurement) under  
reduced oxygen atmospheres**





**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2020

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](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Symbols</b> .....	<b>2</b>
<b>5 Principle</b> .....	<b>3</b>
<b>6 Apparatus</b> .....	<b>4</b>
6.1 General.....	5
6.2 Heater and enclosure and chimney arrangement with cone calorimeter as per ISO 5660-1.....	5
6.2.1 Enclosure.....	5
6.3 Water-cooling for weighing device.....	6
6.4 Chimney.....	6
6.5 Air- and gas-supply system.....	7
6.6 Enclosure oxygen analyser.....	7
6.7 Data collection and analysis system.....	7
<b>7 Suitability of product for testing</b> .....	<b>7</b>
<b>8 Specimen construction and preparation</b> .....	<b>7</b>
<b>9 Test environment</b> .....	<b>7</b>
<b>10 Calibration</b> .....	<b>8</b>
10.1 Operating calibrations.....	8
10.1.1 Enclosure oxygen analyser.....	8
10.1.2 Enclosure flow rate measurement.....	8
10.1.3 Heater calibration.....	8
<b>11 Test procedure</b> .....	<b>8</b>
11.1 General precautions.....	8
11.2 Initial preparation.....	8
11.3 Procedure.....	8
11.4 Criteria to consider a test as successful.....	10
<b>12 Calculations</b> .....	<b>11</b>
12.1 General.....	11
12.2 Calibration constant for oxygen consumption analysis.....	11
12.3 Correct time delay.....	11
12.4 Heat release rate.....	11
<b>13 Test report</b> .....	<b>13</b>
<b>Annex A (informative) Commentary and guidance notes for operators</b> .....	<b>17</b>
<b>Annex B (informative) Additional information for using the linked configuration</b> .....	<b>18</b>
<b>Annex C (informative) Additional information for using the enclosure as standalone device with ISO 13927 controls</b> .....	<b>19</b>
<b>Annex D (informative) Gas flow rates</b> .....	<b>20</b>
<b>Bibliography</b> .....	<b>23</b>