

# DIN EN 1127-1:2008-02 (E)

## Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology

---

<b>Contents</b>		<b>Page</b>
Foreword .....		4
Introduction .....		5
<b>1</b>	<b>Scope .....</b>	<b>6</b>
<b>2</b>	<b>Normative references .....</b>	<b>7</b>
<b>3</b>	<b>Terms and definitions .....</b>	<b>7</b>
<b>4</b>	<b>Hazard identification .....</b>	<b>8</b>
<b>4.1</b>	<b>General .....</b>	<b>8</b>
<b>4.2</b>	<b>Combustion properties .....</b>	<b>8</b>
<b>4.3</b>	<b>Ignition requirements .....</b>	<b>9</b>
<b>4.4</b>	<b>Explosion behaviour .....</b>	<b>9</b>
<b>5</b>	<b>Elements of risk assessment .....</b>	<b>9</b>
<b>5.1</b>	<b>General .....</b>	<b>9</b>
<b>5.2</b>	<b>Determining the amount and likelihood of an occurrence of an explosive atmosphere .....</b>	<b>10</b>
<b>5.3</b>	<b>Determining the presence of effective ignition sources .....</b>	<b>11</b>
<b>5.4</b>	<b>Estimating the possible effects of an explosion .....</b>	<b>16</b>
<b>6</b>	<b>Risk reduction .....</b>	<b>16</b>
<b>6.1</b>	<b>Fundamental principles .....</b>	<b>16</b>
<b>6.2</b>	<b>Avoidance or reduction of the amount of explosive atmosphere .....</b>	<b>17</b>
<b>6.3</b>	<b>Classification of hazardous areas .....</b>	<b>20</b>
<b>6.4</b>	<b>Requirements for the design and construction of equipment, protective systems and components by avoidance of effective ignition sources .....</b>	<b>20</b>
<b>6.5</b>	<b>Requirements for the design and construction of equipment, protective systems and components to reduce the explosion effects .....</b>	<b>29</b>
<b>6.6</b>	<b>Provisions for emergency measures .....</b>	<b>33</b>
<b>6.7</b>	<b>Principles of measuring and control systems for explosion prevention and protection .....</b>	<b>34</b>
<b>7</b>	<b>Information for use .....</b>	<b>34</b>
<b>7.1</b>	<b>General .....</b>	<b>34</b>
<b>7.2</b>	<b>Information on equipment, protective systems and components .....</b>	<b>35</b>
<b>7.3</b>	<b>Information for commissioning, maintenance and repair to prevent explosion .....</b>	<b>36</b>
<b>7.4</b>	<b>Qualifications and training .....</b>	<b>36</b>
<b>Annex A (informative)</b>	<b>Information for the use of tools in potentially explosive atmospheres .....</b>	<b>37</b>
<b>Annex B (informative)</b>	<b>Classification of zones for gases/vapours and for dusts .....</b>	<b>38</b>
<b>Annex C (informative)</b>	<b>Relation between categories and zones .....</b>	<b>40</b>
<b>Annex D (informative)</b>	<b>Concepts for the use of measuring and control systems to avoid effective ignition sources .....</b>	<b>41</b>
<b>Annex ZA (informative)</b>	<b>Relationship between this European Standard and the Essential Requirements of EU Directive 94/9/EC .....</b>	<b>42</b>

<b>Annex ZB (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC .....</b>	<b>43</b>
<b>Annex ZC (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC .....</b>	<b>44</b>
<b>Bibliography .....</b>	<b>45</b>
<b>Figures Figure 1 -- Scheme for explosion-resistant design .....</b>	<b>30</b>
<b>Tables Table C.1 -- Relation between categories and zones .....</b>	<b>40</b>
<b>Table C.2 -- Applicable equipment in the different zones .....</b>	<b>40</b>
<b>Table D.1 -- Additional measuring and control systems necessary to avoid effective ignition sources .....</b>	<b>41</b>
<b>Table ZA.1 -- Correspondence between this European Standard and Directive 94/9/EC .....</b>	<b>42</b>