Marking of non-electrical explosion protective equipment

### Potentially explosive areas

<table>
<thead>
<tr>
<th>Flammable materials</th>
<th>Temporary behaviour of explosions atmosphere</th>
<th>Classifi- cation of hazardous areas</th>
<th>Equipment protection level</th>
<th>Equipment category as defined in the equipment category (IrEx)</th>
<th>Equipment mark- ing as defined in EN 13463-18</th>
<th>Permitted temperature classes (equipment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gases, vapours</td>
<td>Present continuously or for long periods or frequently</td>
<td>Zone 0</td>
<td>II</td>
<td>Ex h Ga/IIIA, IIIB, IIIC</td>
<td>EN 13463-18</td>
<td>11.1234</td>
</tr>
<tr>
<td></td>
<td>Not likely to exist in normal operation, or if it does, will persist for a short time only</td>
<td>Zone 1</td>
<td>I</td>
<td>En h Ga/IIIA, IIIB, IIIC</td>
<td>EN 13463-18</td>
<td>11.1234</td>
</tr>
<tr>
<td></td>
<td>Occasionally present in a cloud continuously or for long periods or frequently</td>
<td>Zone 2</td>
<td>II</td>
<td>En h Ga/IIIA, IIIB, IIIC</td>
<td>EN 13463-18</td>
<td>11.1234</td>
</tr>
<tr>
<td>Ducts</td>
<td>Occasionally present in a cloud continuously or for long periods or frequently</td>
<td>Zone 3</td>
<td>III</td>
<td>Ex h Ga/IIIA, IIIB, IIIC</td>
<td>EN 13463-18</td>
<td>11.1234</td>
</tr>
</tbody>
</table>

### Subdivisions and classification of gases and vapours

#### Gases and vapours

- **Assignment of gases and vapours according to the ignition temperature**
- **Temperature classes**
- **Maximum surface temperature**
- **Permitted temperature classes (equipment)**

#### Dusts

- **Assignment of dusts according to the ignition temperature**
- **Temperature classes**
- **Permitted temperature classes (equipment)**

### Protection principle/types of protection

**Applications (examples)**
- Gases, vapours and dusts
- Dusts
- Pressure release, suction, ventilator, mill
- Centrifuges, compressors, geared motors, complex assembly group
- Gases and vapours
- Dusts
- Brakes

**Protection principle**
- General requirements
- Constructional safety
- Control of ignition sources
- Liquid diffusion
- Pressurised enclosure
- Protection by flow venting enclosure
- Flame-proof enclosure

**Marking – in accordance with the equipment protection level**
- Very high level of protection
- High level of protection
- Medium level of protection
- Low level of protection

**Standards**
- EN ISO 80079-36
- EN IEC 60079-2
- EN ISO 80079-37
- EN 13463-1
- EN 13463-2
- EN 13463-3
- EN 13463-4
- EN 13463-5
- EN 13463-6
- EN 13463-7
- EN 13463-8

### Use of the operating equipment

**Marking Conditions**
- Without IEx: Equipment can be operated without restrictions
- With X: Certain conditions of use of the equipment
- With U: Component certificate (unsuitable; conformity is certified when used in an overall equipment)

**Max. permissible surface temperature of the equipment**
- Temperature limitation because of dust layer
- Maximum ignition temperature of 5 mm layer of dust

**Max. permissible surface temperature of the dust**
- Lowest outcome of the $T_{	ext{in}}$ values

**Subdivision of dusts**
- Permitted Equipment groups
- Dust groups
- Dusts

### ATEX

- **Gases/Vapours**

  - II 1G Ex h IIC T6 Ga
  - II 2D Ex h IIC T120 °C Db
  - Ex h IIB T120 °C Dc

- **Dusts**

  - II 1D Ex h IIC T6 Ga
  - II 2D Ex h IIC T120 °C Db
  - Ex h IIB T120 °C Dc

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1. Specification number of the Notified Body responsible for the surveillance of the manufacturer’s quality system (Cat. 1).
2. Notified Body (NB) that has tested and certified the product (Cat. 1).
3. Certification Body (CB) that has tested and certified the product (EPL, a, b, and c).

ATEX is in the European Union a mandatory and IECEx a voluntary certification procedure. For the correct application of the certification procedure, please follow the corresponding guidelines, regulations and standards.