What is ATEX?

The European Regulatory Framework for Manufacture, Installation and Use of Equipment in Explosive Atmospheres

Ron Sinclair MBE
Chair – IECEx ExTAG
ATEX = Atmosphères Explosibles

ATEX refers to two separate (but related) European Union (EU) Directives

94/9/EC The “Equipment” Directive
- Concerned with the manufacture and sale of Ex Equipment

1999/92/EC The “Use” Directive
- Concerned with Classification of Hazardous Areas and the correct selection, installation, inspection and maintenance of Ex Equipment
The ATEX Equipment Directive is primarily concerned about TRADE

It applies minimum Essential Health and Safety Requirements (EHSRs) to avoid concerns over safety being a barrier to trade

94/9/EC is not, itself, law but becomes law in each member state of the EU when it is “adopted”.

- Adoption without variation is compulsory so it is common to refer to 94/9/EC as if it is an EU wide law
- Applies to the whole of the EEA (EU plus EFTA)
The ATEX Use Directive is primarily about safety of workers employed in hazardous atmosphere installations.

It specifies MINIMUM requirements but each country can ADD to, or modify, the requirements.

It requires all equipment with a potential ignition source (electrical and non-electrical) to comply with 94/9/EC.

Thus all Ex Equipment sold or installed in the EEA after June 2003 must comply with ATEX 94/9/EC.
All ATEX EC-Type Examination Certificates are issued in respect of conformity with the EHSRs.

An ATEX Certificate does NOT confirm conformity with any particular standard.

Certain standards are designated as “harmonised”.

Conformity to one or more harmonised standards is ONE way to demonstrate conformity to the EHSRs.

Most of the IEC 60079 series equipment standards (in their EN version) are listed as harmonised.
ATEX divides equipment into Categories according to how well the equipment is protected against becoming an active ignition source.

IEC TC31 subsequently devised a similar scheme referring to Equipment Protection Levels (EPLs).

Although the definitions are worded differently, for most purposes the relevant Category and EPL can be considered the same.

There is a “normal” allocation of Category or EPL to a given Zone though this can be varied.
<table>
<thead>
<tr>
<th>Category</th>
<th>EPL</th>
<th>Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>1G</td>
<td>Ga</td>
<td>0</td>
</tr>
<tr>
<td>2G</td>
<td>Gb</td>
<td>1</td>
</tr>
<tr>
<td>3G</td>
<td>Gc</td>
<td>2</td>
</tr>
<tr>
<td>1D</td>
<td>Da</td>
<td>20</td>
</tr>
<tr>
<td>2D</td>
<td>Db</td>
<td>21</td>
</tr>
<tr>
<td>3D</td>
<td>Dc</td>
<td>22</td>
</tr>
<tr>
<td>M1</td>
<td>Ma</td>
<td>Energised in gas</td>
</tr>
<tr>
<td>M2</td>
<td>Mb</td>
<td>De-energised in gas</td>
</tr>
</tbody>
</table>
## CONFORMANCE ASSESSMENT

<table>
<thead>
<tr>
<th>Categories</th>
<th>1 + M1</th>
<th>2 + M2 Electrical</th>
<th>2 + M2 Non-electrical</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC-Type Examination (III)</td>
<td>NB</td>
<td>NB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production QA (IV)</td>
<td>NB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product Verification (V)</td>
<td>NB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conformity to Type (VI)</td>
<td></td>
<td>NB + M</td>
<td></td>
<td></td>
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<tr>
<td>Product QA (VII)</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Internal Control of Production (VIII)</td>
<td></td>
<td></td>
<td>M (+ deposit file)</td>
<td>M</td>
</tr>
<tr>
<td>Unit Verification (IX)</td>
<td>(NB)</td>
<td>(NB)</td>
<td>(NB)</td>
<td>(NB)</td>
</tr>
</tbody>
</table>
A Notified Body (NB) is a certification body which is appointed by a member state in the EEA and “notified” to the European Commission for particular directives.

Some, but not all NBs have accreditation for the activity.

The module “internal control of production” does not require the intervention of a NB.

In some cases, the market will not accept this and most NBs also issue voluntary Cat 3 certification.
PRODUCTION SURVEILLANCE

- Production Quality Control – based on ISO 9002 current in 1994
- Product Quality Control – based on ISO 9003 current in 1994 – not normally used
- Product Verification – suitable only for very low production runs – NB inspects every item produced
- Conformity to Type – a hybrid involving inspection by the manufacturer to a quality plan agreed with NB
- Unit Verification – a hybrid of Type Examination plus Product Verification concurrently
- Production Quality Control
- ATEX document Quality Assessment Notification (QAN)
- Identical process to IECEx Quality Assessment Report (QAR)
- Most ATEX NBs which are also members of IECEx use a common system
  - ISO/IEC 80079-34 supports and extends current ISO 9001
  - EN 80079-34 has additional information relating to non-electrical equipment
• Declaration of Conformity (DoC)
• Document created by the manufacturer without NB involvement
• Signed on behalf of the manufacturer “on the day” the equipment is dispatched
• Based on the manufacturer engaging a NB for some equipment and only on the manufacturer’s own internal processes for other equipment
Technical – ExNB Working Group
- The ATEX equivalent of IECEx ExTAG
- Chair – Martin Thedens (PTB, Germany)
- Vice Chair – Thierry Houiex (Ineris, France)
- Vice Chair – Ron Sinclair (SGS Baseefa, UK)

Legal – EU Commission Standing Committee WG
- Partly equivalent to ExMC in IECEx
- Provides mainly non-technical interpretations
- Issues “ATEX Guidelines”
- Formally issues ExNB Decision Sheets to public
Standardisation

- EU Commission mandate CEN and CENELEC to write standards “in support of the EHSRs”
  - In practice many are EN versions of IEC or ISO text
- Mandated standards are reviewed by the EU Commission’s ATEX Consultant, to confirm the standard does support the EHSRs
- Mandated standards accepted by the consultant are “harmonised” when their number is published in the Official Journal of the EU (OJ)
- Conformity to a harmonised standard is deemed to confirm conformity to the EHSRs
WEAKNESSES OF ATEX

- Variable level of accreditation of NBs
  - Differs from country to country

- Variable level of Conformity Assessment
  - Rules are clear but not well understood by the market

- Certificates are against the EHSRs and not the standards
  - Even if standards are used to support the EHSRs there is nothing to prevent “alternative approaches” which are not clear on the marking or front page of the certificate
STRENGTHS OF ATEX

- Legal system with obligatory application in EEA
  - Removes barriers to trade within EEA

- The name “ATEX” has become well known worldwide
  - Although as IECEx Certificate Numbers grow, IECEx is “taking over” outside EEA

- Certificates are against the EHSRs and not the standards
  - This allows flexibility in adopting new technology ahead of standardisation (Ex s IEC 60079-33 has been introduced to allow IECEx to do the same but under more control)
NEW LEGISLATIVE FRAMEWORK (NLF)

- ATEX is one of a number of “New Approach” directives (including Machinery, EMC, etc.)
- Because they were written at different times some wording differs unnecessarily
- Wording to be aligned where possible
- New tightened rules on accreditation of NBs
- NO change to technical requirements
- Existing EC-Type Examination Certificates will remain valid
In 99.5% of cases an IECEx ExTR can underpin an ATEX EC-Type Examination Certificate as the technical requirements (IEC and EN standards) are normally identical

- Only additional marking required

In all cases an IECEx Quality Assessment Report (QAR) underpins the ATEX Quality Assessment Notification (QAN)
A European IECEx ExCB will often issue both IECEx and ATEX documentation at the same time.

A manufacturer elsewhere in the world can obtain IECEx reports (ExTR and QAR) locally and submit to a NB for issue of ATEX Documentation.

This is essentially the same process as obtaining Inmetro Ordnance 179 Certification for Brasil.

- In both cases, the receiving certification body will review the reports and, if necessary, seek clarification, before issuing local certification.
EU Commission certainly aware of IECEx and the UNECE initiative

- EU Commission representative attended a similar UNECE workshop in 2011

NLF activity has delayed any possible other changes to ATEX 94/9/EC

Future revisions are possible and may allow for the specific use of IECEx documents as a direct input

- But even now, an IECEx Certificate can directly underpin a DoC for Category 3 Equipment, without involving a NB
Thank You

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