HazLoc Essential Guides:

Understanding the differences between ATEX and IECEx
Introduction

This whitepaper aims to explain the differences between the ATEX EU legal Directives and the IECEx voluntary certification scheme. Often these terms are confused and interchanged by users and manufacturers alike.

Introduction to Ex

Ex areas can be known by different names such as “Hazardous Locations”, “Hazardous Areas”, or “Explosive Atmospheres”. These are areas where flammable liquids, vapours, gases or combustible dusts are likely to occur in quantities sufficient to cause a fire or explosion.

The modern day automation of industry has meant an increased need to use equipment in Ex areas. Such equipment is often termed “Ex equipment”.

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Where do you commonly find Ex equipment?
Ex equipment can be found in the following types of areas:

- Automotive refuelling stations or petrol stations
- Oil refineries, rigs and processing plants
- Power generation
- Chemical processing plants
- Printing industries, paper and textiles
- Pharmaceutical production/manufacture
- Aircraft refuelling and hangars
- Surface coating industries
- Underground coalmines
- Sewerage treatment plants
- Gas pipelines and distribution centres
- Grain handling and storage
- Woodworking areas
- Food processing plants
- Sugar refineries
- Metal surface grinding, especially metal dusts and particles

ATEX Overview

ATEX consists of two EU directives: ATEX 95 equipment directive 94/9/EC and ATEX 137 workplace directive 99/92/EC

ATEX Directive 94/9/EC
The ATEX Directive applies to electrical and mechanical equipment and protective systems intended for use in potentially explosive atmospheres. It was adopted by the European Parliament and the Council in 1994 and came into force in Europe in 1996. The name of the directive comes from the French “Atmosphères Explosibles”.

Compliance was voluntary until July 2003 when it became mandatory for organisations in the EU to follow the directive to protect employees from explosion risk in areas with an explosive atmosphere.

Equipment must meet three preconditions (to be certified):

1. Have its own effective source of ignition
2. Be intended for use in a potentially explosive atmosphere (air mixtures)
3. Be used under normal atmospheric conditions
Regulations apply to all equipment intended for use in explosive atmospheres, whether electrical or mechanical, including protective systems.

The Declaration of Conformity (DoC) is self declared by the manufacturer.

The aim of directive 94/9/EC is to allow the free trade of ‘ATEX’ equipment and protective systems within the EU by removing the need for separate testing and documentation for each member state.

ATEX Directive 99/92/EC
The ATEX 137 Workplace Directive 1999/92/EC, (also known as the ‘Use' Directive) is implemented by the National Health and Safety Enforcement Agencies within the EU member state (e.g. HSE in UK). The directive details the minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres.

ATEX 94/9/EC Certification

Product Certification – Electrical
Categories 1 & 2 (M1 & M2) and Safety Devices
- Certification of equipment by Notified Body
- Certification of Quality System by Notified Body

Category 3 – Self Declaration by manufacturer
- Internal Control of Production

Product Certification- Non-Electrical
Category 1 & M1 and Safety Devices (e.g. vent panels)
- Certification of equipment by Notified Body
- Certification of Quality System by Notified Body

Category 2 & M2 – Requires a Technical Dossier to be lodged with a Notified Body
Category 3 – Self Declaration by manufacturer
- Internal Control of Production
ATEX Categories, Zones and Divisions

<table>
<thead>
<tr>
<th>ATEX Category</th>
<th>Zone Designation</th>
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<tbody>
<tr>
<td>1</td>
<td>0, 20</td>
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<tr>
<td>2</td>
<td>1, 21</td>
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<td>3</td>
<td>2, 22</td>
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<tr>
<td>M1</td>
<td>I (Mines with firedamp)</td>
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<tr>
<td>M2</td>
<td>I (Mines with firedamp)</td>
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Alternatively for all categories unit verifications are possible.

Markings

Manufacturers who apply its provisions and affix the CE marking and the Ex marking are able to sell their equipment anywhere within the EU without any further requirements being applied with respect to the risks covered.

IECEx Overview

The IECEx Scheme was established in 2003 as a means of mutual recognition by various national laboratories of equipment and services intended for use in explosive atmosphere environments, while maintaining the required level of safety.

The IECEx is a voluntary program.

The system’s primary objectives include cutting certification costs, speeding turnarounds, reducing time to market, providing one international database listing, and building and maintaining international confidence in the product assessment process.

IECEx requires that electrical equipment demonstrates conformity to IEC 60079 series standards prepared by IEC TC31, which will result in an Ex Test Report (Ex TR).
Why IECEx Scheme is Important to you?

Countries operate under different standards which means that Ex equipment often needs to be re-tested and re-certified to the appropriate standards of that country, adding to the cost of the equipment.

The IECEx Scheme significantly reduces the need for re-testing and re-certification by conforming to the international IEC standards and makes international trade easier, quicker and more cost effective.

IECEx International Certification System

In addition to the preparation of International Standards, the IEC facilitates the operation of Conformity Assessment Systems. One such System is the IECEx System.

IECEx System includes the following:

1. IECEx Certified Equipment Scheme
2. IECEx Conformity Mark Licensing System

IECEx Certified Equipment Scheme

The IECEx Certified Equipment Scheme provides either:

a) A single International Certificate of Conformity that requires manufacturers to successfully complete:
   - Testing and Assessment of samples for compliance with Standards
   - Assessment and auditing of manufacturer’s premises
   - On-going surveillance audits of manufacturer’s premises

Or

b) A “fast-track” process for countries where regulations still require the issuing of national Ex Certificates or approval.
   - Achieved by way of global acceptance of IECEx equipment Test and Assessment Reports.

Covers products that meet the requirements of International Standards, e.g. IEC Standards prepared by TC 31.
Ex Mark of Conformity System

The Ex Mark of Conformity will be granted by approved IECEx certifiers (ExCBs) located in IECEx participating countries for equipment that is covered by an IECEx Certificate of Conformity and hence has been tested and manufactured under systems that are under ongoing surveillance by ExCBs.

The Mark shall only be placed on products or on packaging and promotional material covered by a valid IECEx Certificate of Conformity issued in accordance with the IECEx System rules.

IECEx Member Countries

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<tr>
<th>Australia</th>
<th>Malaysia</th>
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<tr>
<td>Brazil</td>
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<td>United Kingdom</td>
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<td>Korea</td>
<td>United States of America</td>
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IECEx Membership Requirements

Ex equipment Manufacturers seeking IECEx certification can apply to IECEx Certification Bodies (termed ExCBs), in any country.


Certification bodies and testing laboratories wishing to be accepted must reside in a participating country. Application for is made through their National Member Body of the IECEx System for the country in which they reside.

Certification bodies and testing laboratories are accepted after satisfactory assessment of their competence.

Similarities between ATEX and IECEx

The standards used to evaluate the equipment are all virtually identical.

The standard used to evaluate the facility’s QA system are identical – where EN13980 says “ATEX”, OD009 says “IECEx Scheme”.

<table>
<thead>
<tr>
<th>ATEX</th>
<th>IECEx</th>
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<tbody>
<tr>
<td>Regional (EU &amp; EFTA only)</td>
<td>Global</td>
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<tr>
<td>Mandatory</td>
<td>Voluntary</td>
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<td>Self Declare Compliance</td>
<td>Compliance Requirements:</td>
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<td></td>
<td>- Accreditation (ExCB)</td>
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<td>- Facility Quality Assessment</td>
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Summary: Which should you choose

Given the similarities between the EN and IEC standards, it is recommended that manufacturers pursue both ATEX and IECEx simultaneously.
How Intertek can help

Intertek is both an ATEX Notified Body (for all equipment concepts and facilities) and an IECEx Certification Body (CB).

Intertek has the widest coverage of all product types and EU Directives so you can be assured your compliance needs can be met in full.

Should you require assistance to conduct conformity assessment work, or need help to gain new market access, then please contact Intertek, who will gladly help to find a way past any barriers to market access.

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