

**UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE**

# **A Common Regulatory Framework for Equipment Used in Environments with an Explosive Atmosphere**



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The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies and operates Conformity Assessment Systems. IECEx is the IEC worldwide certification system covering Equipment, Services and Personnel associated with the use of Equipment in Explosive Atmospheres. Further information on IEC and its IECEx Conformity Assessment System may be obtained via:



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## **A common regulatory framework for equipment used in environments with an explosive atmosphere**

The United Nations, through the United Nations Economic Commission for Europe (UNECE), is a multilateral platform that facilitates greater economic integration and cooperation among Member States and promotes sustainable development and economic prosperity.

The UNECE Working Party on Regulatory Cooperation and Standardization Policies (WP. 6) has worked in close cooperation with the International Electrotechnical Commission (IEC) and the IEC System for Certification to Standards relating to Equipment for Use in Explosive Atmospheres (IECEX) to develop a model for legislation in the sector of equipment used in environments with an explosive atmosphere. The Model has been adopted by the WP. 6 at its 20th session, in November 2010. The text is contained in this publication. The model provides for adequate risk mitigation, without creating excessive costs or red tape for business.

Any Member State that has no regulatory framework in the explosive equipment sector can use the model as a blueprint for legislation. If countries already have such a framework, they could consider gradually converging towards this international model. Once the model has been adopted as national legislation, the sector will operate under a single common regulatory framework in all participating countries.

### **Background**

Recent explosion-related industrial accidents throughout the world have caused unprecedented environmental damage and cost many lives. While national regulations exist in some countries, there is an urgent need for an international approach to increase safety wherever workers and communities are exposed to high risk of explosions occurring.

Mines and offshore facilities are obvious places where explosions can occur. But they could also happen where flammable liquids, vapours, gases or combustible dusts are likely to occur in quantities sufficient to cause a fire or explosion; for instance, in the chemical and oil industry, gas stations, facilities for handling and storage of grains, woodworking areas and sugar refineries.

The equipment used in these environments and the overall design of the plants is increasingly based on a single engineering approach and on the fundamental principles of explosion protection, which have been applied in industry and mines for over 100 years. These are codified in international standards such as the International Electrotechnical Commission (IEC) 60079 series, and conformity assessment best practice such as the International Organization for Standardization (ISO) System No. 5 for product certification schemes – including IECEX.

Many national and regional regulations already use the technical requirements contained in the International Standards drawn up by IEC. However, national laws and regulations are still diverging, and at times indeed conflicting in their requirements. In addition, many regulatory environments emphasize the mandatory approval by domestically recognized notified bodies of all imported equipment.

This makes it difficult to open markets for explosion-protected equipment and services and is against the interest of both industry and consumers.

## **Objectives**

The UNECE Working Party 6 established a “sectoral initiative” to tackle existing challenges in this sector. Specifically, the project aimed at:

- Fostering the use of relevant IEC and ISO International Standards by the industry.
- Promoting a globally harmonized legislation.
- Ensuring mutual acceptance of test procedures and test results among the test houses.
- Striving for comparable installation, maintenance and repair procedures of the equipment.

## **Achievements of the UNECE sectoral initiative**

The UNECE Working Party on Regulatory Cooperation and Standardization Policies (WP. 6):

- Approved the common regulatory objectives at its session in 2009 and amended them at its 2010 session.
- Collected information about the legal framework in force in the main markets (including the European Union, North America, the Russian Federation and Australia). This information is available on the Working Party’s website  
[http://www.unece.org/trade/wp6/SectoralInitiatives/EquipmentForExplosiveEnvironment/SIEEE\\_updatedreplies.pdf](http://www.unece.org/trade/wp6/SectoralInitiatives/EquipmentForExplosiveEnvironment/SIEEE_updatedreplies.pdf).
- Established a partnership with the International Electrotechnical Commission System for Certification to Standards relating to Equipment for Use in Explosive Atmospheres (IECEX System) which has been actively supporting the project since its establishment.

## **Current activities**

UNECE is launching a project on organizing awareness-raising and capacity-building events worldwide. The project will aim at showing regulatory authorities the high risks and challenges that are inherent in the sector, and highlighting best practice in industry, standardization and certification bodies.

## Common Regulatory Objectives

### 1 Background

1. Explosion protection is an essential part of the overall risk management to be conducted for industrial plants and appliances, to ensure safety in industrial processes using or producing hazardous materials like – for example – combustible gas, dusts or vapours.
2. The basic principles of explosion protection have been applied in industry and mines for over 100 years. They have been codified in international standards such as the International Electrotechnical Commission (IEC) 60079-0 series, and conformity assessment best practice such as the International Organization for Standardization (ISO)/IEC Guide 67. They are also at the basis of product certification systems – such as the IECEx, the IEC System for Certification to Standards relating to Equipment for Use in Explosive Atmospheres, [www.iecex.com](http://www.iecex.com).
3. The significance of the international standards upon which the industry relies can be seen by the increased participation in IEC Technical Committee, TC 31: Equipment for explosive atmospheres, which reached 44 countries as of April 2009, either participating or observing. Further information concerning the work of IEC TC 31 can be found at [www.iec.ch](http://www.iec.ch).
4. Many national and regional regulations already use the technical requirements contained in the international standards drawn up by IEC TC 31, which, in cooperation with ISO, also develops standards covering non-electrical equipment (mechanical).
5. The ISO and IEC International Standards are increasingly adopted by participating countries at the regional and national level, either in full, without any variation, or in part, with supplementary requirements contained in national standards.
6. Countries use standards in their regulations in different ways, including:
  - a) by making standards mandatory through a legislative act;
  - b) by making compliance with the standards a means of proving compliance with the essential health and safety requirements laid out in the legislation: under this approach, equipment that complies with the provisions of the standards is “deemed to comply” with the requirements specified in the regulations.

### 2 Purpose of the Sectoral Initiative on Equipment Used in Environments with an Explosive Atmosphere

7. The purpose of the Sectoral Initiative on Equipment Used in Environments with an Explosive Atmosphere is to promote the convergence of national technical regulations currently in place in this sector towards a shared framework. This will reduce barriers to trade for this equipment, as well as costs. It will also increase the safety of the installations and the well-being of personnel working in the sector, as well as that of the communities living near the installations.

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