International Electrotechnical Commission System
for Certification to Standards Relating to Equipment
for Use in Explosive Atmospheres (IECEx System)

The UNECE Sectoral Initiative on Equipment for Explosive Environments
A **global legislative framework** for **Explosion Protection**
The approach of UNECE Model L regulation

IECEx 2018

International Conference
Split, Croatia
23rd April 2018

INTRODUCING

Lorenza Jachia

UNECE Focal Point, Disaster Risk Reduction

Secretary, Working Party on Regulatory Cooperation and Standardization Policies

United Nations Economic Commission for Europe

The UNECE Sectoral Initiative on Equipment for Explosive Environments

A **global regulatory framework** for **Explosion Protection**

The comprehensive approach of the
UNECE Model L Regulation

Why is the UN here?

- The UN aims at protecting the safety of workers, citizens, consumers: Repeated testing means that safe and reliable equipment is unaffordable for countries that need it the most

- The UN promotes the participation of developing countries and countries in transition in international trade: Barriers to trade are lost opportunities for our membership

Русский

Navigation

About UNECE | Our work | Themes | Where we work | Open UNECE | Events | Publications | Media

UNECE activities on Sustainable Development

UNECE has an extensive and diversified work programme which is focused on contributing to sustainable development by means of concrete and results-oriented activities that address the needs of countries of the region and beyond. These activities are carried out in eight broad areas of work or subprogrammes: environment, transport, statistics, economic cooperation and integration, sustainable energy, trade, timber and forestry, and housing, land management and population.

The "mainstreaming" of sustainable development in all UNECE activities has been actively pursued. Key activities include the following:

- The development and implementation of the five UNECE environmental conventions and related protocols

- The UNECE Strategy for Education for Sustainable Development that strives for education at all levels that will make children and adults more cognizant and knowledgeable on sustainability issues.

- The management of fifty-eight international transport agreements and the development of standards and recommendations that promote affordable, safe and clean transport.

- The Pan-European Programme on Transport, Health and Environment (THE PEP) as a platform for sharing knowledge and best practices on integrated approaches to transportation, health and environment issues.

- The Conference of European Statisticians (CES) Recommendations on Measuring Sustainable Development, prepared by UNECE in cooperation with OECD and Eurostat, and the CES Recommendations on Climate Change-Related Statistics.

WP.6 Main areas of work

Sectoral initiatives:
- Develop a common regulatory framework in specific sectors
- So far: Earth-moving equipment, ExEquipment, Pipeline Safety

Market surveillance:
- Develop and share best practice/Recommendations
- Recommendation on "Market Surveillance Policies"
- Develop a common terminology and provide advisory services/technical assistance
- Worldwide database of market surveillance authorities

Risk Management:
- Best practice/Recommendation on using risk management tools in developing and implementing regulations
- 2 Recommendations on "Crisis Management" and "Risk management in Regulatory systems"
- Book on "Risk Management in Regulatory Systems"

Gender-responsive standards initiative:
- To challenge the perception that standards and technical regulations are "gender neutral"
- To enhance the contribution of standards in reaching SDG Goal 5 on "Empowering Women and Girls"

Education on standards-related issues:
- Recommendation on "Education on standards-related issues"
- A Group of Experts (START-Ed Group) is progressing the work on integrating standards and standards related issues into the curricula of universities, vocational training institutions and other research establishments

WP.6 work on Standards for Sustainable Development Goals (SDGs)

- United Nations SDGs were agreed to as the 2030 Agenda for Sustainable Development in September 2015 with 17 goals and 169 targets

- The new Agenda builds on the Millennium Development Goals and seeks to complete what these did not achieve

- At the 25th Session of WP.6 in December 2015 the Secretariat of the Working Party highlighted how standards were an important tool for implementation of the 2030 Agenda

WP.6 work on Standards for Sustainable Development Goals (SDGs) - continued

- In 2016 the Secretariat of WP.6 prepared a note how standardization policies and technical regulations could contribute to SDG Goal 5 «Achieve gender equality and empower all women and girls»

- As a follow-up an initiative for Gender–responsive standards was launched

- During the 2017 WP.6 Plenary Session a High-Level International Conference on "Standards for the SDGs" was held focussing on SDGs 5, 12 (Sustainable production and consumption) and 14 (Conserve and sustainably use the oceans, seas and marine resources for sustainable development)

- A follow-up event to the International Conference is planned as a joint ISO-UNECE event on September 26, 2018 during the ISO General Assembly in Geneva

WP.6 works towards
better and convergent regulations

- In sectors of high concern

- Governments define "common regulatory objectives" i.e. they define legitimate government concerns (public health, safety, protection of the environment, interoperability, etc)

- And agree on how to reach them

- By reference to international standards

- Specifying:

    – how compliance is assessed

    – which conformity assessment bodies are recognized as competent,

    – what competence criteria are to be fulfilled

Recommendations

Seventeen UNECE recommendations have been adopted by the Working Party since 1970 to address standardization and regulatory issues. They set out good practice regarding:

- Regulatory cooperation
- Metrology
- Standards and Norms
- Conformity assessment
- Market surveillance

Recommendations are not binding and do not aim at rigidly aligning technical regulations across countries.

Working Party encourages rule makers to base their regulations on international standards to provide a common denominator to the norms that apply in different markets.

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

Recommendations on Regulatory Cooperation and Standardization Policies

UNITED NATIONS

- International Model for Transnational Regulatory Cooperation Based on Good Regulatory Practice

- Revised in November 2015

- A set of tools

- Countries can use to harmonize their technical regulations and regulatory systems in any sector at a regional or global level

- It has also been used to harmonize regulations in all sectors between two countries or within a customs union

- Builds on the principles of the WTO TBT Agreement but goes further

- Authorities decide to work together on a specific sector

- They agree on Common Regulatory Arrangements (CRAs)

- They transpose the CRAs into national technical regulations

- When products have been assessed in the exporting country as compliant with the CRAs they can automatically be sold in other markets with no further assessment

Users in the chemical and petroleum industry act more and more globally with a single engineering approach for their plants

➢ to save engineering, installation & maintenance costs

➢ to buy the equipment in a larger number and get a
  better price per piece

➢ to benefit from global competition among manufacturers

Barriers against this tendency are domestic rules and regulations which require special engineering for the plants from country to country.

Manufacturers want to sell and manufacture their products

➢ without additional national differences for the product and delays to market

➢ in accordance to one global standard without double-testing of their product

➢ without formal restrictions to place it on the market

Barriers against this tendency are domestic rules and regulations which require special differences for the product from country to country.

Sectoral Initiative on Equipment for Explosive Environments (SIEEE*)* Overview:

✓ Kick off meeting 2007 in Geneva
  Presentations of the various systems, **Questionnaire**
✓ 2008 Geneva
  Preparation of the **Terms of Reference**
✓ 2009 Geneva
  Presentation of the **Common Regulatory Objectives**
✓ 2010 Berlin
  Presentation of the **Workshop-Concept**
✓ 2011 Split
  Presentation of various Regulation Systems and Market Surveillance Aspects
✓ 2012 Dubai First Workshop and at PCIC (Prague) a joint UNECE-IECEx-Paper
✓ 2013 Fortaleza   Update Questionnaire (Translation into Spanish and Portuguese)
  and the EU-Russia Industrialists' Round Table (IRT)
✓ 2014 Kuala Lumpur
✓ 2015 Gdansk
✓ 2017 Shanghai
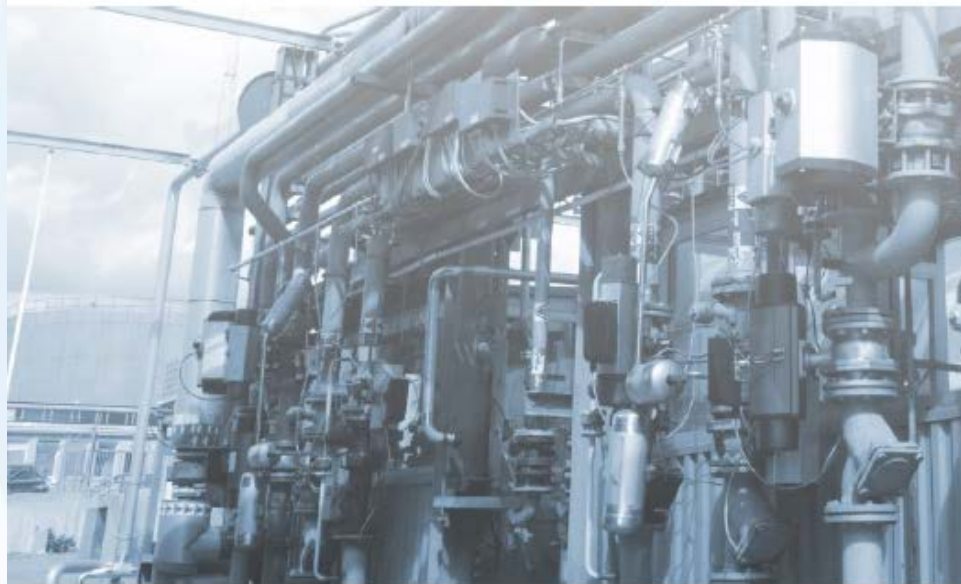
Meetings of the IECEx System
Fortaleza, Brazil : 16 - 20 September 2013

Home   General Information   Meeting Registration   Hotel Reservation   Meeting Documents   UNECE

2017 IECEx International Conference, Shanghai, China 11 - 12 April 2017

Intention of the Common Regulatory Arrangements (CRA)

White paper approach

➢ to cover comprehensively all relevant issues
   in order to achieve a globally accepted safety level

➢ to provide a global „Best Practice" model as template
   for national regulation

➢ Focus to the main objectives
   – Easy to understand
   – Open for national modifications

➢ Specify the distributed roles and related responsibilities of
   the involved parties:
   – Regulator
   – Market Surveillance
   – Certification Body
   – Manufacturer
   – End user/Operator

➢ Open for ongoing maintenance and modification
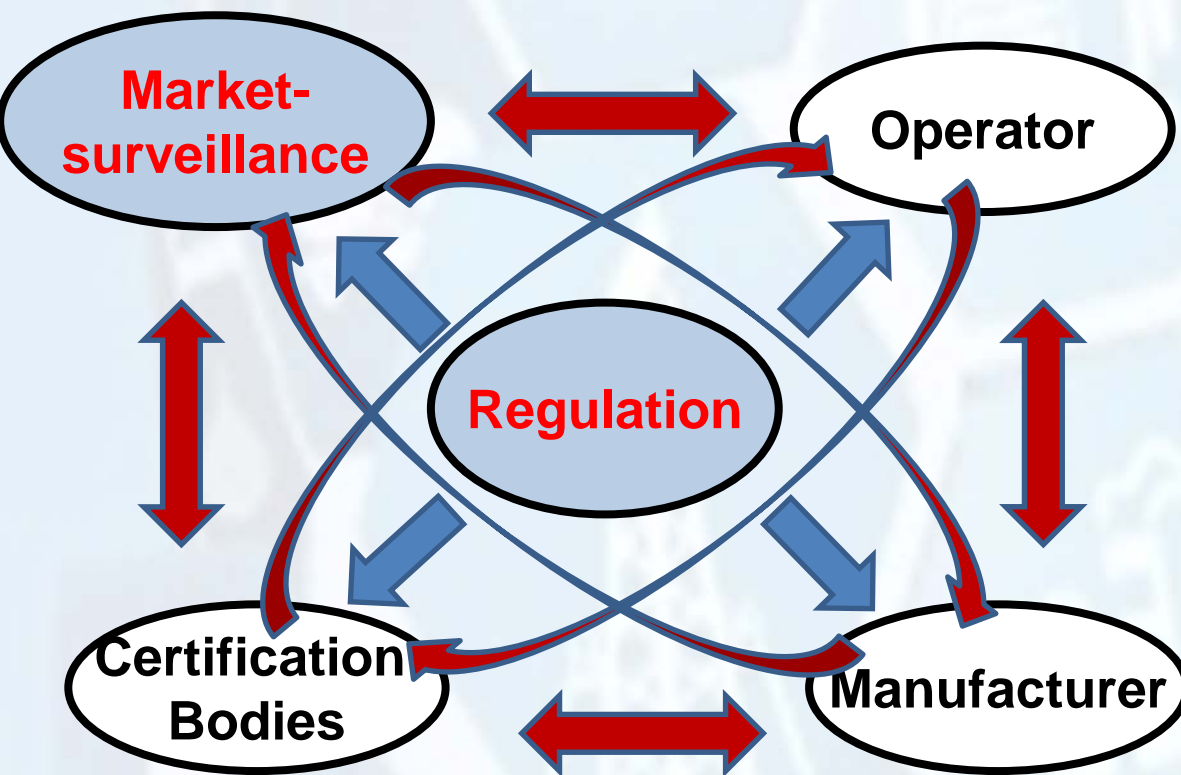
1. Definition/Jurisdiction
   a) Market Surveillance
   b) Certification Bodies
   c) Manufacturer
   d) Operator
2. Interaction
   a. Cert. B. ↔ Manu.
   b. Manu. ↔ Oper.
   c. MS ↔ Oper.
   d. MS ↔ Manu.
   e. MS ↔ Insp. B.
   f. Cert. B.↔ Insp. B.

Placing on the market

» Elimination of possible ignition sources in accordance to intended use of the equipment, typical ignition sources are:

» Hot surfaces
» Electrical sparks
» Mechanical sparks
» Electrostatic

13 Ignition sources

» Validated protection concepts ("Types of Protection") have to be applied

IEC/ISO 60079-"X" / 80079-"X"

» Instructions (manual) about the intended use, installation and repair

IEC/ISO 60079-"X" / 80079-"X"

» Conformity assessment procedure in accordance to an international certification scheme such as IECEx (IECEx procedure can be seen as a reference)

IECEx-02

CRA Part 2: Safe use of the equipment

» Classification of the explosive substances in accordance to:
   » Ignition Temperature
   » Explosions Groups (Ignition Energy)

   Ex d e IIC T3 Gb

» IEC-Zone Classification Concept (Zones for Gas and Dust) with the applicable Equipment Protection Levels

   IEC 60079 -10

» The equipment and its installation need to be inspected and maintained

   IEC 60079 -14, -17,-19

» Requirements for the competency of persons (selection, installation, use of the equipment)

   IECEx-05

» Requirements for service facilities (e.g. repair workshops)   IECEx-03

» The Explosion risk assessment of an individual plant needs to be documented in the "Explosion Protection Document"

Testing

ISO/IEC 17025
IECEx 02

Production

ISO/IEC 17021

**IEC
ISO
IECEx**

Certification

**ISO Guide 65 / 67
[ISO/IEC 17065]
IECEx 02**

Service

IECEx 03

**Persons
Competency**

**ISO/IEC 17024
IECEx 05**

» Accepted Standards (ISO/IEC) are listed in an annex to the regulation (State of the Art)

» The standards has to be accepted by a Standard Acceptance Group

» After the acceptance the Standards can be applied by manufacturers and end users to show compliance with the regulation

» All countries which have implemented the Regulation enjoy the advantages like barrier free trade of explosion protected equipment and equal conditions for operating a plant bearing explosion risks

» The accreditation body has to be a member of ILAC/IAF

» The accreditation of
   » Conformity Assessment Bodies
   » Test Laboratories
   has to follow the applicable ISO/IEC-Standards

» One member of the assessor team needs competence in the field of explosion protection (see e.g. the list of approved IECEx assessors).

» Procedures and Rules of the IEC Conformity Assessment System IECEx is to take as a reference for conformity assessment

» An Explosion Protection Steering Committee is to formed and operated under the umbrella of UNECE WP.6 (ExSC) to monitor the application experiences

» All member having implemented the CROs can participate in the Explosion Steering Committee (ExSC)

» ExSC notifies the members of the Standard Acceptance Group

» Observers like
    » Standardization Organization (IEC/ISO)
    » Market Surveillance
    » IECEx
    are also invited to attend the meetings

» A Market Surveillance network specialized in Ex-Equipment is to be formed and operated (UNECE-ExMars)

» For critical non-conformance of Ex-Equipment an Alert-System is necessary

---

Ex - Market Surveillance Concept based on the general concept of the Advisory Group on Market Surveillance („**MARS**" Group)

Strategy:
• Developing a general procedure for market surveillance (GMSP)
• Increasing cooperation with stakeholders and sharing the work of Market Surveillance internationally
• Increasing the visibility of Market Surveillance to the outside world

Guidelines for the Ex-Market Surveillance

Contents:

1. Introduction:
2. Actions of the MS
   2.1 Pro Active
   2.2 Reactive
3. Cooperation and Exchange of Experience (with other stakeholder)
   3.1 Internet-Platform
   3.2 Arbitration Board
   3.3 Alert-System
4. Definition of Ex-Products and the boundary conditions
   4.1 Zone Concept (Essential Requirements)
   4.2 Types of Protection (Applicable Standards)
5. Explanation of the objectives of the surveillance activities (Compliance Criteria)
   5.1 Labeling and Conformity Declaration
   5.2 Manual
   5.3 Technical Inspection
6. List of References

Capacity building activities

Den Haag 2014
Gdansk 2015

Shanghai 2017

Kuala Lumpur 2014

Fortaleza 2013

Dubai 2012
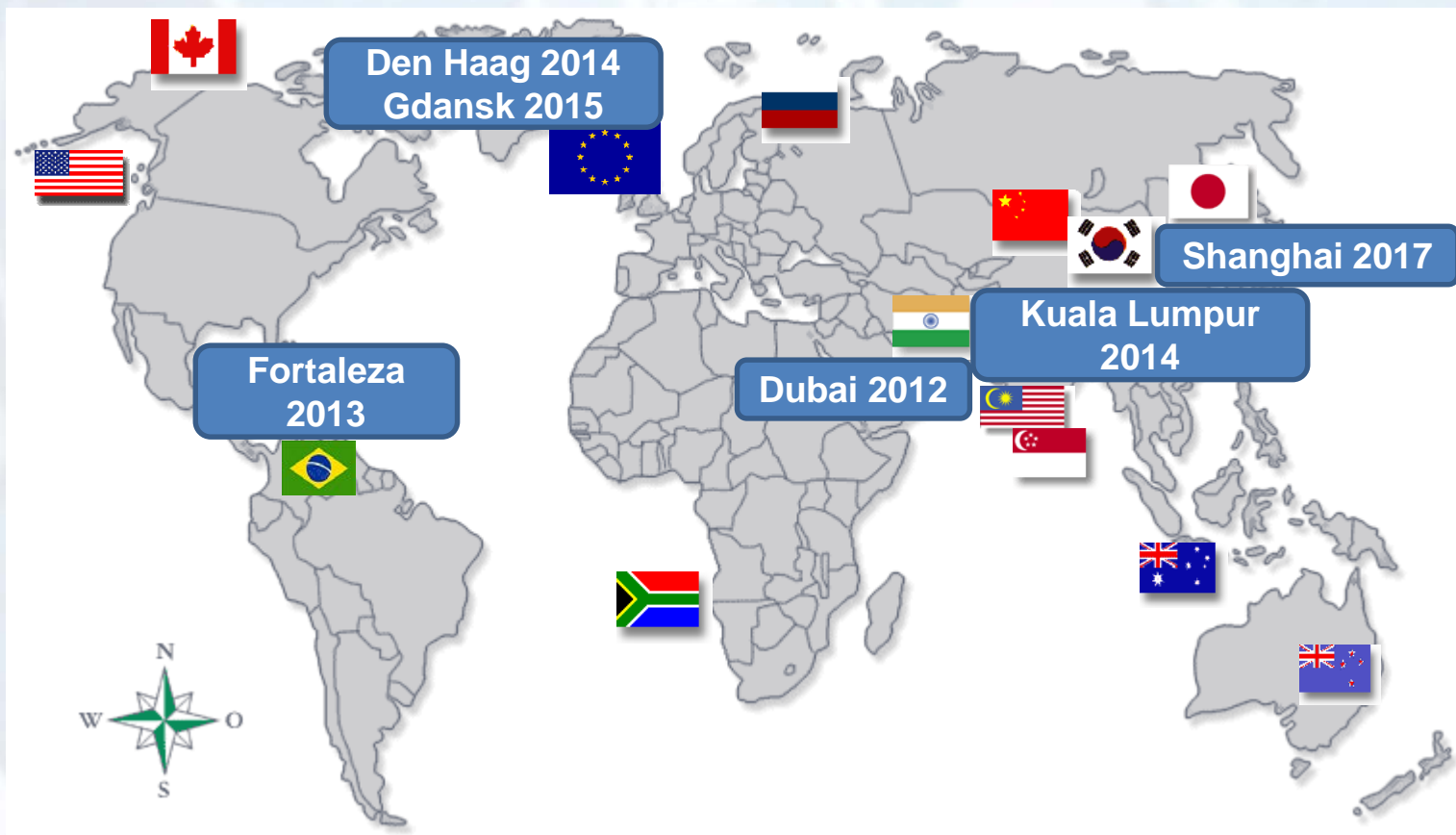
Outputs:

• Comprehensive description of the methodology of the system

• Guidance documents for the various stakeholders (Regulators, Market Surveillance, Manufacturer, Operator, Inspection bodies)

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

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

Second edition of the Common Regulatory Arrangements is planned to be adopted by UNECE WP.6 at the 28th Plenary Session of the Working Party in November 2018 and published in 2019

UNITED NATIONS

WP.6 work on Cybersecurity

- IEC and UNECE are collaborating on tackling the risks that cybersecurity is posing to the safety of individuals, companies and communities.
- The objective of the work is developing a proposal for a WP.6 sectoral initiative on cybersecurity and to develop a tool for use by governments, regulators, asset-owners and industry.
- Work has been progressing during bi-monthly webinars of GRM and information exchange with IEC Conformity Assessment Board (CAB) on IEC work on cybersecurity.
- A proposal for new sectoral initiative on cybersecurity was accepted at the 27th Plenary session of WP.6

Thank you

Lorenza Jachia

Secretary, UNECE WP.6

United Nations Economic Commission for Europe

Lorenza.Jachia@un.org