

2018 IECEx INTERNATIONAL CONFERENCE

IEC TC 31 Standards update



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Introduction

Mark COPPLER

Chairman IEC TC 31 July 2014 - 2020

Ex-officio member IECEx Management Committee

Convenor WG 32 on creepage and clearance distances

Liaison to TC 109 on Insulation Coordination

Member 6 TC 31 maintenance teams

DTA USNC TC 31 > 10 yrs.

**Involved in US & IEC standards development since early
1990s.**

**12 yrs. ISA Standards & Practices board Managing Director
ISA 12, 82 & 92**



Introduction

Mark COPPLER

- Sr. Product Certification Specialist - DNV-GL 2012 - pres.**
 - Eng. Mgr.; Sr. B.U. Compliance Engineer - AMETEK P&AI - 1997-2012**
 - Sr. Dev. Engr.; Eng. Mgr. - Bacharach Inc. - 1987-1997**
 - Eng. Mgr.; VP Engineering - Quasitronics Inc. - 1982-1987**
 - Eng. Tech.; Test Tech. ; Dev. Engr. - Thermox Instruments - 1976-1982**
- > 35 years employed by manufacturers, designing and certifying new products in the process analyzer, instrumentation and gas detection market as well as other equipment for use in hazardous areas.**
 - > 6 years certifying equipment and QMS auditing.**

Presentation

- **IEC and its publications**
- **TC 31 History**
- **TC 31 Structure**
- **Work in process**
- **Strategic plan**
- **Recent developments**
- **Info resources**



WORLD Standards Development Organizations

ITU - International Telecommunication Union

ISO - International Organization for Standardization

IEC - International Electrotechnical Commission

Electrotechnical standards → IEC, the rest → ISO

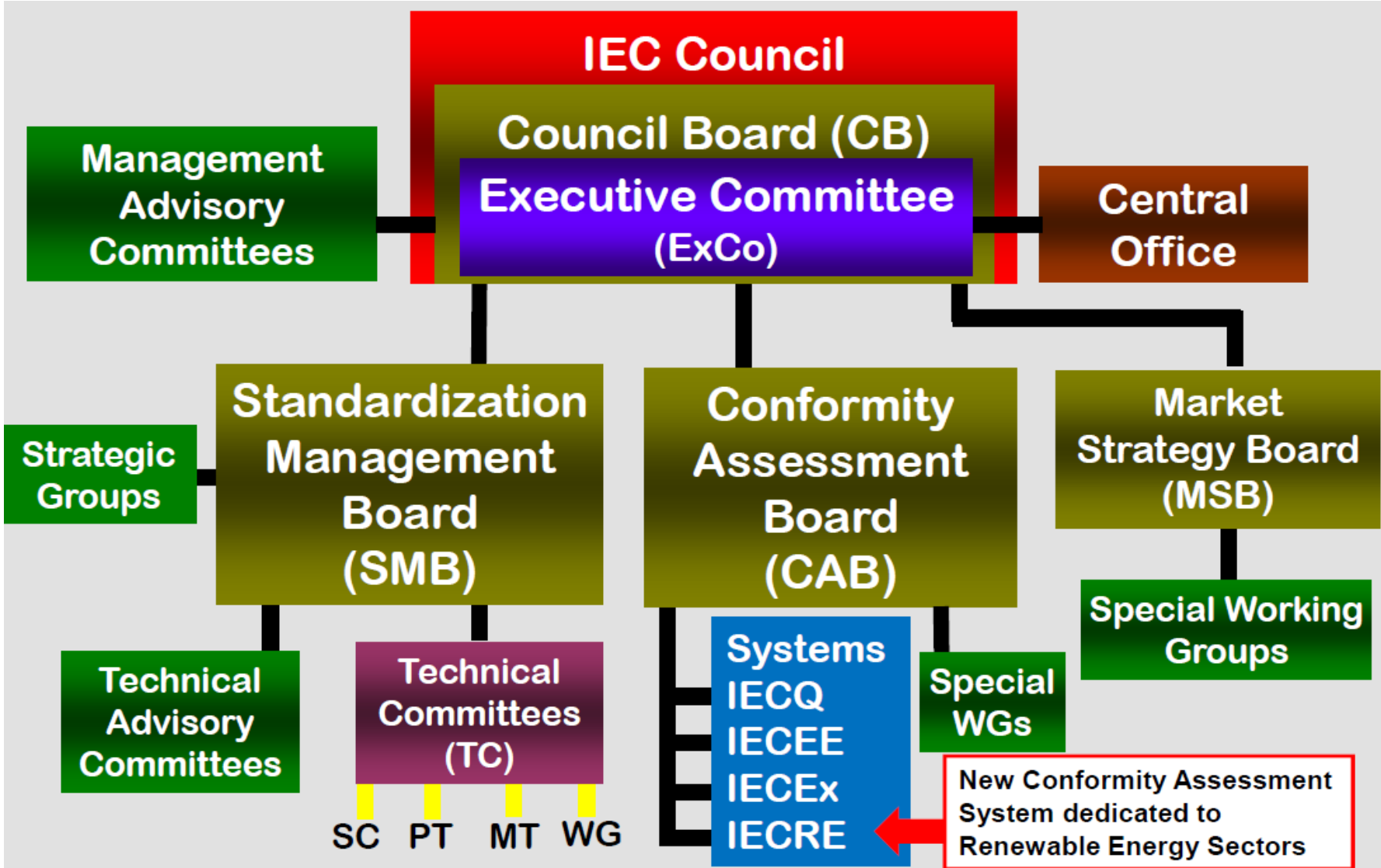
Standards for equipment for hazardous areas → TC 31

Intrinsic safety → SC 31G

Area classification and installation → SC 31J

Non-electrical, protective systems & quality systems → SC 31M

IEC Structure



TC 31 History

Established 1948

**To develop explosion protection techniques for
Electrical equipment in explosive atmospheres
(gases, vapors and mists)**

Expanded

**classification, installation requirements
combustible dusts
non-electrical equipment**

IEC Standards adoption

- **Widely adopted throughout the world**
 - **Some National Deviations**
- **Basis for local, regional & International certification (IECEx)**
- **Used by multinational companies & mfrs. supplying products to the world.**
- **TC 31 standards & IECEx System recognized as best practice by United Nations as ‘A Common Regulatory Framework for Equipment Used in Environments with an Explosive Atmosphere’.**

TC 31 Structure

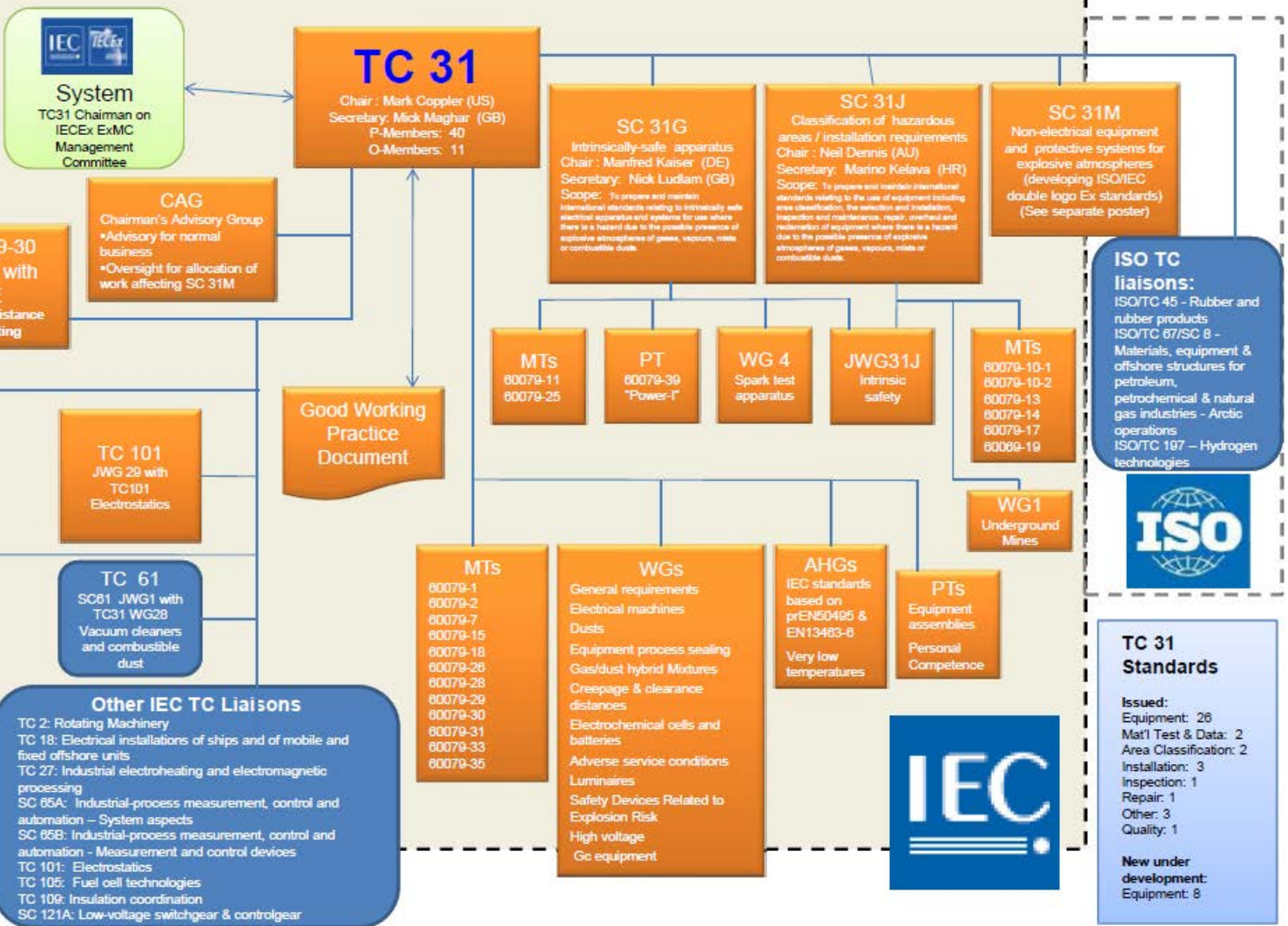
39 P - Members (Voting countries)

12 O - Members (Observer countries)

Experts are qualified and assigned by the National Committees of the member countries.

IEC/TC 31 EQUIPMENT FOR EXPLOSIVE ATMOSPHERES

Scope: To prepare and maintain international standards relating to equipment for use where there is a hazard due to the possible presence of explosive atmospheres of gases, vapours, mists or combustible dusts



Other IEEE Liaisons:
TC 31/MT60079-7
TC 31A/MT60079-17



Some significant matters:

- Operating since 1948
- Only TC with ISO/IEC subcommittee
- First TC to develop a Good Working Practice (praised by SMB and copied by other TCs)
- Use of 'horizontal working groups' (eg motors, electrostatics, luminaires)
- Work on affect of arctic conditions
- Significant world-wide adoption of standards
- Parallel voting of standards in Europe and elsewhere.



THE START

It was decided by ISO/TMB and IEC/SMB at their meetings in June 2007, to create a new subcommittee of IEC/TC 31, IEC SC 31M, to develop double logo standards in the field of non-electrical equipment for use in explosive atmospheres and to assign the secretariat to DIN (Germany).



IEC SC with ISO secretariat as part of IEC TC 31

IEC TECHNICAL COMMITTEE 31: EQUIPMENT FOR EXPLOSIVE ATMOSPHERES

Implementation of the New IEC SC 31 M,

Minutes of meeting in Frankfurt on 2007-06-18

... On behalf of TC31 we welcome SC31M into our family of committees that is now able to address all aspects of equipment for explosive atmospheres.

Mr. George Thompson, Secretary IEC TC31

IEC SC 31M

Non-electrical equipment and protective systems for explosive atmospheres

Chair : Michael Beyer (DE)

Secretary: Anke Sachleben (DE)

Scope: To prepare and maintain international standards relating to non-electrical equipment and protective systems for use where there is a hazard due to the possible presence of explosive atmospheres of gases, vapours, mists or combustible dusts

Note: For the purposes of this sub-committee non-electrical equipment is defined as "equipment which can achieve its intended function mechanically". For the purposes of this sub-committee, 'Protective system' is defined as devices other than components of the equipment which are intended to halt incipient explosions immediately and/or to limit the effective range of an explosion.

P-Members: 24, O-Members: 7

THE AIM



A coordinated international approach to develop Ex standards for non-electrical equipment and for protective systems on the basis of CEN standards, and similar standards from other countries, within the umbrella of IEC TC 31



Materials & QA

Source PTB



Mechanical equipment

Source PTB



Working groups

Source PTB

MT 80079-20-1: Maintenance of IEC 60079-20-1 Ed. 1.0: Explosive atmospheres - Part 20-1: Material characteristics for gas and vapour classification - Test methods and data
Convenor : Mr Martin Thedens (DE)

MT 80079-20-2: Explosive atmospheres Part 20-2: Material characteristics - Combustible dusts test methods
Convenor : Mr Don Ankele(US)

MT 80079-34: ISO/IEC 80079-34 Ed. 1.0: Explosive atmospheres - Application of quality systems for electrical and non-electrical equipment
Convenor: Mr Thierry Houeix (FR)

MT 80079-38: ISO/IEC 80079-38 Ed. 1.0: Explosive atmospheres - Non-electrical equipment for use in explosive atmospheres- Equipment and components in explosive atmospheres in underground mines
Project Leader : Mr Elmar Fuchs (DE)

PT 80079-41: ISO/IEC 80079-41 Ed. 1.0: Explosive atmospheres - Reciprocating internal combustion engines
Project Leader : Mr Elmar Fuchs (DE)

WG 1 Non-electrical equipment

Task : - to produce informative document(s) on selection, installation, maintenance, repair and overhaul for non-electrical equipment);
- to provide advice and draft proposals to SC 31M on specific task assigned by SC 31M including coordination of requirements for non-electrical equipment in all standards within SC 31M
- to provide draft proposals for the revision of the informative annexes on non-electrical equipment in ISO/IEC 80079-34;
- to be responsible for maintenance of ISO 80079-36.

Convenors : Mr Thierry Houeix (FR)
Mr Konrad Brehm (DE)

TC 31 Existing publications

Electrical equipment standards:

- IEC 60079-0 General requirements
- IEC 60079-1 Flameproof enclosure Ex d
- IEC 60079-2 Pressurization Ex p
- IEC 60079-5 Powder filling Ex q
- IEC 60079-6 Oil immersion Ex o
- IEC 60079-7 Increased safety Ex e
- IEC 60079-11 Intrinsic safety Ex i
- IEC 60079-13 pressurized room Ex p
- IEC 60079-14 Electrical installation
- IEC 60079-15 Non-Incendive Ex n
- IEC 60079-16 Analyzer Houses
- IEC 60079-17 Inspection & Maintenance
- IEC 60079-18 Encapsulation Ex m
- IEC 60079-19 Repair, Overhaul and Reclamation
- IEC 60079-25 Intrinsically safe systems
- IEC 60079-26 Equipment w/Protection Level Ga EPL Ga

TC 31 Existing publications

Electrical equipment standards:

IEC 60079-28	Optical radiation
IEC 60079-30-1	Trace heating General & testing reqmts
IEC 60079-30-2	Trace heating design, installation & maintenance
IEC 60079-31	Dust ignition protection by enclosure "t"
IEC 60079-33	Special protection 's'
IEC 60079-35-1	Caplights for mines - General requirements
IEC 60079-35-2	Caplights – Performance & Safety related matters
IEC TS 60079-39	Intrinsically safe systems with electronically controlled spark duration limitation
IEC TS 60079-32-1	Electrostatic hazards, guidance
IEC TS 60079-40	Process sealing
IEC TS 60079-43	Adverse Service Conditions
IEC TS 60079-46	Equipment assemblies
IEC 60079-32-2	Electrostatics hazards – Tests

Gas Detection standards:

IEC 60079-29-1	Flammable Gas detectors Performance requirements
IEC 60079-29-2	Flam. Gas detectors Selection, installation, use & maintenance
IEC 60079-29-3	Guidance on functional safety of fixed gas detection systems
IEC 60079-29-4	Performance requirements of open path detectors

TC 31 Existing publications

Non-Electrical standards:

- IEC 60079-10-1 Zone Area classification – Gas
- IEC 60079-10-2 Zone Area classification – Dust
- IEC 60079-20-1 Materials - gas & vapour classification
- IEC 80079-20-2 Material characteristics - Combustible dusts test methods
- ISO/IEC 80079-34 Ex Quality Systems
- ISO/IEC 80079-36 Non-electrical equipment - Basic method and requirements
- ISO/IEC 80079-37 Non-electrical equipment - Type of protection constructional safety "c", control of ignition source "b", liquid immersion "k"
- ISO/IEC 80079-38 Equipment and components in underground mines

Work in progress

Document	Stage	Projected Pub
• IEC 60079-6 amd1	CD	2019-07
• IEC 60079-11 Ed. 7.0	CD	2020-07
• IEC 60079-18 amd2	PWI	
• IEC 60079-19 Ed. 4.0	FDIS	2019-01
• IEC 60079-25 Ed 3.0	CD	2020-02
• IEC 60079-31 Ed. 3.0	CDV	2019-01
• ISO/IEC 80079-34 Ed. 2.0	FDIS	2018-09
• ISO/IEC 80079-41 Ed.1.0	CD	2019-05
• IEC 60079-42 Ed. 1.0	CD	2019-06
• IEC 60079-45 Ed. 1.0	CD	2021-03
• IEC 62990-1 Ed. 1.0	FDIS	2018-11
• IEC 62990-2 Ed. 1.0	CD	2020-02
• Personal Competence	NP	

TC 31 Strategic Plan



SMB/6051/R

STRATEGIC BUSINESS PLAN (SBP)

IEC/TC OR SC:	SECRETARIAT:	DATE:
31	UK	2016-10-14

Please ensure this form is annexed to the Report to the Standardization Management Board if it has been prepared during a meeting, or sent to the Central Office promptly after its contents have been agreed by the committee.

A. STATE TITLE AND SCOPE OF TC

Are there any new or emerging trends in technology that will impact the scope and work activities of the TC? Please describe briefly.

Do you need to update your scope to reflect new and emerging technologies? If yes, will these changes impact another TC's scope or work activities?

If yes, describe how these will impact another TC(s) and list the TC(s) it would impact

IEC TC 31 Equipment for explosive atmospheres Scope

TC 31 - To prepare and maintain international standards relating to equipment for use where there is a hazard due to the possible presence of explosive atmospheres of gases, vapours, mists or combustible dusts.

B. MANAGEMENT STRUCTURE OF THE TC

Describe the management structure of the TC (use of an organizational chart is acceptable) (should be integrated by CO automatically) and, if relevant (for example an unusual structure is used), provide the rationale as to why this structure is used.

Note: Check if the information on the IEC website is complete.

When was the last time the TC reviewed its management structure? Describe any changes made. When does the TC intend to review its current management structure? In the future, will the TC change the current structure, for example due to new and emerging technologies, product withdrawal, change in regulations etc. Please describe.

Make sure the overview includes:

- any joint working groups with other committees,
- any special groups like advisory groups, editing groups, etc.

IEC/TC 31 has three subcommittees

- SC 31G Intrinsically-safe apparatus
- SC 31J Classification of Hazardous Areas and installation requirements
- SC 31M Non-electrical equipment and protective systems for explosive atmospheres

The committee TC 31 was established in July 1948 to address the need to develop techniques for ensuring electrical equipment would not provide an explosion risk when used in explosive atmospheres involving gases, vapours and mists. The scope has been progressively expanded to include classification, installation requirements and combustible dusts. Most recently the scope has been expanded to include non-electrical equipment as a joint ISO-IEC development.

Over the more than 60 years of its operation there have been a variety of sub-committees

TC 31 Strategic Plan

Trends in Technology

Functional Safety

Very cold environments

Cells & batteries

Luminaries

Safety devices / explosion risk

“Power-i”

Non-electrical equipment

High Power

Refrigerants

Assemblies & Skids

TC 31 Strategic Plan

Completed Objectives

Publish first IEC/IEEE standards for electrical resistance trace heating

Provide summary & significance of changes

Promote UNECE CROs incorporating adoption of TC 31 standards

Develop standards for certification of assemblies

In-process & New objectives

To continually improve the effectiveness and relevance of TC 31

Investigate the issues associated with the influence of environmental factors in adverse service conditions

Broader coverage & integration of requirements Group I

Inclusion of gas detection standards for toxic gases and oxygen within the IEC 60079-29 series

Recent Developments

IEC 60079-0:2017 ED7 **2017-12**

Equipment - General requirements

IEC 60079-15:2017 ED5 **2017-12**

Equipment protection by type of protection "n"

IEC TS 60079-43:2017 ED1 **2017-11**

Equipment in adverse service conditions

ISO/IEC 80079-20-1:2017 ED1 **2017-12**

**Material characteristics for gas and vapour
classification - Test methods and data**

Info Resources - TC 31 Dashboard



The screenshot shows the IEC TC 31 Dashboard website. The browser address bar displays the URL: http://www.iec.ch/dyn/www/f?p=103:7:0:::FSP_ORG_ID,FSP_LANG_ID:1232,25. The page header includes the IEC logo and the text "International Electrotechnical Commission" and "International Standards and Conformity Assessment for all electrical, electronic and related technologies". Navigation links include "myIEC", "Subscribe", "Sitemap", "FAQs", and "Contact us". A main navigation menu lists categories like "You & the IEC", "About the IEC", "News & views", "Standards development", "Conformity assessment", "Members & experts", "Developing countries", and "Webstore". A search bar is also present.

The breadcrumb trail reads: Standards development > How we work > Technical Committees & Subcommittees > **TC 31 Dashboard**. The main heading is "TC 31 Equipment for explosive atmospheres". Below this, there are tabs for "Scope", "Structure", "Projects / Publications", "Documents", "Votes", "Meetings", and "Collaboration Tools".

The "TC 31 Scope" section contains the text: "To prepare and maintain international standards relating to equipment for use where there is a hazard due to the possible presence of explosive atmospheres of gases, vapours, mists or combustible dusts". An image labeled "TC 31" shows a person in a laboratory setting.

The "Further information" section includes a table with the following data:

Secretariat	United Kingdom
Strategic Business Plan	
Good Working Practice	
Contact	TC 31 Officers
Information on TC 31 meetings	

A vertical "Feedback" button is located on the right side of the page.

http://www.iec.ch/dyn/www/f?p=103:7:0:::FSP_ORG_ID,FSP_LANG_ID:1232,25

Thank you