Explosion Safety Training

Kiwa organizes **dedicated training courses in Germany**
(Hannover, Kaufbeuren) especially for German manufacturers
and **at Kiwa in Apeldoorn**, The Netherlands.
Language spoken is German and English
(German speaking trainers with English written slides)

General approach

The trainings are all focused on manufacturers of "Ex equipment or components"

Category	Scope	Duration
Mechanical protection methods	For product design engineers / Ex-specialists	2 days
Intrinsic safety	For product design engineers / Ex-specialists	2 days
General ATEX & IECEx	General training ATEX & IECEx for manufacturers	1 day

Trainers

Harry de Wild
Senior Approval Engineer Mechanical protection methods.
About 28 years experience in ATEX and IECEx product approval certification (at two conformity assessment bodies)
Member NEC 31/TC31

Paul van Nijen
Senior Approval Engineer Electrical protection methods / intrinsic safety
About 18 years experience in ATEX and IECEx product approval certification
Previous product design engineer electronics (Lucent Technologies / Nokia)
Member NEC 31/TC31/MT 60079-11

Petrouchka Kaasenbrood
Approval Engineer Mechanical protection methods (5 years experience).
ATEX and IECEx lead auditor
Previously international approval manager Bronkhorst High-Tech B.V.
Member ExNB group (EU Brussels) and IECEx primary contact.

Pieter van Breugel
Founder Kiwa ExVision / Manager Business Development Kiwa
27 years active in conformity assessment bodies (metrology and explosion safety).
Trainer explosion safety at HBO Drechtsteden / DaVinci (post BSc. Level)
Member CEOC JTC PTC (EU joint technical committee on product testing & certification)

Training mechanical protection methods

Specialist training for product design engineers / Ex-specialists

Practical product examples	To focus on the application of standards we take concrete product examples as a reference like Luminaires (e.g. LED), Sensors, Display electronics / indicators, Measuring computers, Terminal blocks, Junction boxes, Enclosures, Actuators, Camera's, Motors, Batteries, Portable Personal Electronics (tablets, smartphones) etc.

IEC 60079-0: Equipment - General requirements

Non-metallic enclosures and non-metallic parts of enclosures, Ex Equipment and Ex Components often contain non-metallic parts on which the type of protection depends. Examples are plastic enclosures, O-rings, cemented windows, bushings. For these materials several requirements apply, such as temperature limit (COT, (R)TI), resistance to UV and surface resistance. Questions that often arise are: can materials be accepted when the specifications are not complete but the tests are positive; are alternative specifications for COT or UV acceptable; how shall the tests be conducted when temperatures of the non-metallic parts are different at several location.

IEC 60079-1: Equipment protection by flameproof enclosures 'd'

Flameproof joints: For flameproof enclosures several types of joints are possible. The most used joint types are flanges, spigot, cylindrical and threaded. Questions that often arise are: why are certain joint types not allowed; which thread types are allowed; how shall the test samples be prepared and how are the samples tested.

IEC 60079-7: Equipment protection by increased safety 'e'

Non-sparking Ex Components and Ex Equipment, general requirements, connections, relocation of nA from IEC 60079-15.

IEC 60079-18: Equipment protection by encapsulation "m"

Ex Components and Ex Equipment, constructional requirements, determination of faults, use of protective devices.

IEC 60079-28: Protection of equipment and transmission systems using optical radiation

Optical radiation applies for all kind of equipment emitting optical radiation, such as lasers, luminaires and optical fibers. Questions that often arise are: how do we know if this standard applies for our product; why does this standard apply for LED luminaires but not for high power luminaires with divergent light sources other than LEDs.

IEC 60079-31: Equipment dust ignition protection by enclosure 't'

Enclosures and equipment requirements, general and specific requirements for Level of Protection "ta" (EPL "Da"), sealing of joints.

Duration, Costs & Venue

Specialist training for product design engineers / Ex-specialists

Training hours	Day 1: 9.30h – 12.00h – lunch break - 13.00h – 17.00h Day 2: 9.00h – 12.00h – lunch break - 13.00h – 16.00h	
Costs	Participation in training, **including** hotel costs Hotel costs include room for one night, lunches, evening dinner	**Euro 1850,-** excl. V.A.T.
Maximum number of participants	10 (minimum 6) if more participants are interested, additional dates and locations will be suggested.	
Venue	Hotels to be confirmed: close to Hannover, Kaufbeuren or Apeldoorn	

Training intrinsic safety

Specialist training for product design engineers / Ex-specialists

Practical product examples	To focus on the application of standards we take concrete product examples as a reference heaving Ex-i circuits like sensors, display electronics / indicators, measuring computers, camera's, portable personal electronics (tablets, smartphones, gas detectors) etc. etc.. and of course some critical components like barriers or electronic limiting devices. **IEC 60079-0:** Equipment - General requirements The applicable general requirements for intrinsic safety are limited (as shown in the exclusion table of IEC 60079-11) but still some requirements remain. Such as the requirements for ambient, service and surface temperatures, requirements for enclosure materials, IP rating, general requirements for cells and batteries and not the least for the marking and instructions. **IEC 60079-11**: Equipment protection by intrinsic safety "i" Details will be given for the basics of intrinsic safety where should be determined that a circuit producing any spark or temperature is not capable of igniting the explosive atmosphere under normal operating conditions as well as the applicable number of faults. With the basics in mind the safety concept needs to be defined from which the safety components such as fuses, (Zener)diodes, resistors and isolating components can be indicated and analyzed. Although the main focus within the field of intrinsic safety will be based on analysis and calculation some testing might be involved to show compliance to spark ignition or thermal ignition requirements (e.g. spark ignition testing, temperature testing, thermal resistance of safety components and cell or battery testing).

Duration, Costs & Venue

Specialist training for product design engineers / Ex-specialists

Training hours	Day 1: 9.30h – 12.00h – lunch break - 13.00h – 17.00h Day 2: 9.00h – 12.00h – lunch break - 13.00h – 16.00h	
Costs	Participation in training, **including** hotel costs Hotel costs include room for one night, lunches, evening dinner	**Euro 1850,-** excl. V.A.T.
Maximum number of participants	10 (minimum 6) if more participants are interested, additional dates and locations will be suggested.	
Venue	Hotels to be confirmed: close to Hannover, Kaufbeuren or Apeldoorn	

Content – General -

General training ATEX & IECEx for manufacturers	
Physics of explosions	How can explosions occur? What is an explosive atmosphere? Chemical properties of gasses and dusts resulting in classifications (gas groups / dust codes). Explanation of the 13 ignition sources and types of protection.
Marking	Based on the above: the logic of ATEX and IECEx marking of products with explanation. (better understanding of protection type, temperature classes, gas & dust groups, product categories for mining or non-mining applications)
Legal framework	What is relevant for manufacturers regarding ATEX Directive? Which conformity assessment modules (CE modules))are applicable in which situation? When is the route to a Notified Body mandatory and when not? What can we learn from the ATEX Guidelines and the blue guide? Where do I find a list of Notified Bodies with their scope? Which harmonized standards are published by the EU (where to find?)
IECEx	Explanation of the IECEx system. Rules to be followed and a comparison with the ATEX requirements.
QAR & QAN	Explanation of the Quality Audit Report & Quality Assurance Notification process which ensures that the production of explosion safe products are in conformity with the previous type approved products.
Products, components, assemblies and installations	What can be certified (borderline list)? What is the difference between a product and a component? Which certificates do exist and why (X and U certificates)? How to deal with combinations of products and components (assemblies)? Where does an assembly stop and an installation begin.
Other regions like North America	National differences compared with the IECEx requirements. Specific differences when applying for USA and Canada approvals
Conformity assessment bodies	Guidance in how to find relevant information about Notified Bodies (NANDO database), IECEx CB's and TL's (IECEx database), certificates issued. Basic explanation of approval process (including documents required) and eventual factory inspection requirements.

Duration, Costs & Venue

General training ATEX & IECEx for manufacturers		
Training hours	One day: 9.00h – 12.00h – lunch break - 13.00h – 16.00h	
Costs	Participation in training, including lunch	**Euro 700,-** excl. V.A.T.
Maximum number of participants	20 (minimum 8) if more participants are interested, additional dates and locations will be suggested.	
Venue	Hotels to be confirmed: close to Hannover, Kaufbeuren or Apeldoorn	

Registration form – please fill in and send back to: ExVision@kiwa.nl

General Terms and Conditions

☐ By ticking the box on the left I declare to have read and to accept the Kiwa General Conditions for the performance of orders: 2014 of Kiwa Nederland B.V.
The invoice regarding this project will be sent by Kiwa ExVision B.V. a subsidiary of Kiwa Nederland B.V. The payment shall be made within 30 days of the date of the invoice.

Name participant: ……

Company: ……

Address: ……

Email address ……

Mobile telephone: ……

Participation in: Specialist training – **MECHANICAL PROTECTION METHODS**

Tick the right box	☐	Kaufbeuren (G): 23 and 24 January 2019	Euro 1850,-
Tick the right box	☐	Hannover (G): 20 and 21 Fabruary 2019	Euro 1850,-
Tick the right box	☐	Apeldoorn (Kiwa NL): 13 and 14 March 2019	Euro 1850,-

Specialist training – **INTRINSIC SAFETY**

Tick the right box	☐	Kaufbeuren (G): 23 and 24 January 2019	Euro 1850,-
Tick the right box	☐	Hannover (G): 20 and 21 February 2018	Euro 1850,-
Tick the right box	☐	Apeldoorn (Kiwa NL): 13 and 14 March 2019	Euro 1850,-

Training ATEX & IECEx for manufacturers - **GENERAL**

Tick the right box	☐	Kaufbeuren (G): 22 January 2019	Euro 700,-
Tick the right box	☐	Hannover (G): 19 February 2019	Euro 700,-
Tick the right box	☐	Apeldoorn (Kiwa NL): 12 March 2019	Euro 700,-

Signature: ……

Name: ……

Date: ……

PLEASE SEND THIS FORM TO: EXVISION@KIWA.NL