

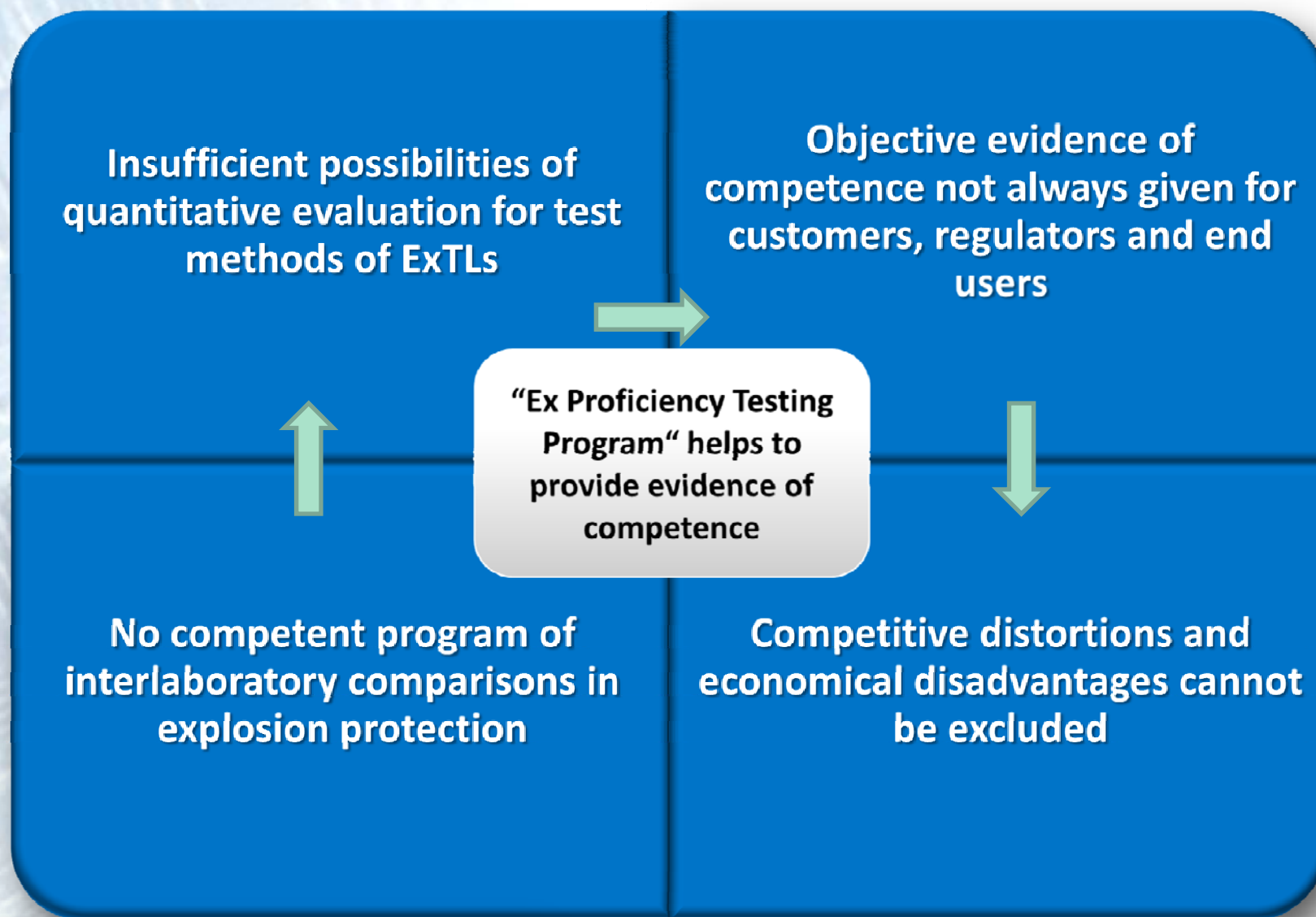
PTB Ex Proficiency Testing Program (PTB Ex PTP)

“Interlaboratory comparisons in explosion protection”



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**Convenor of ExTAG WG 10
„Proficiency Testing“**



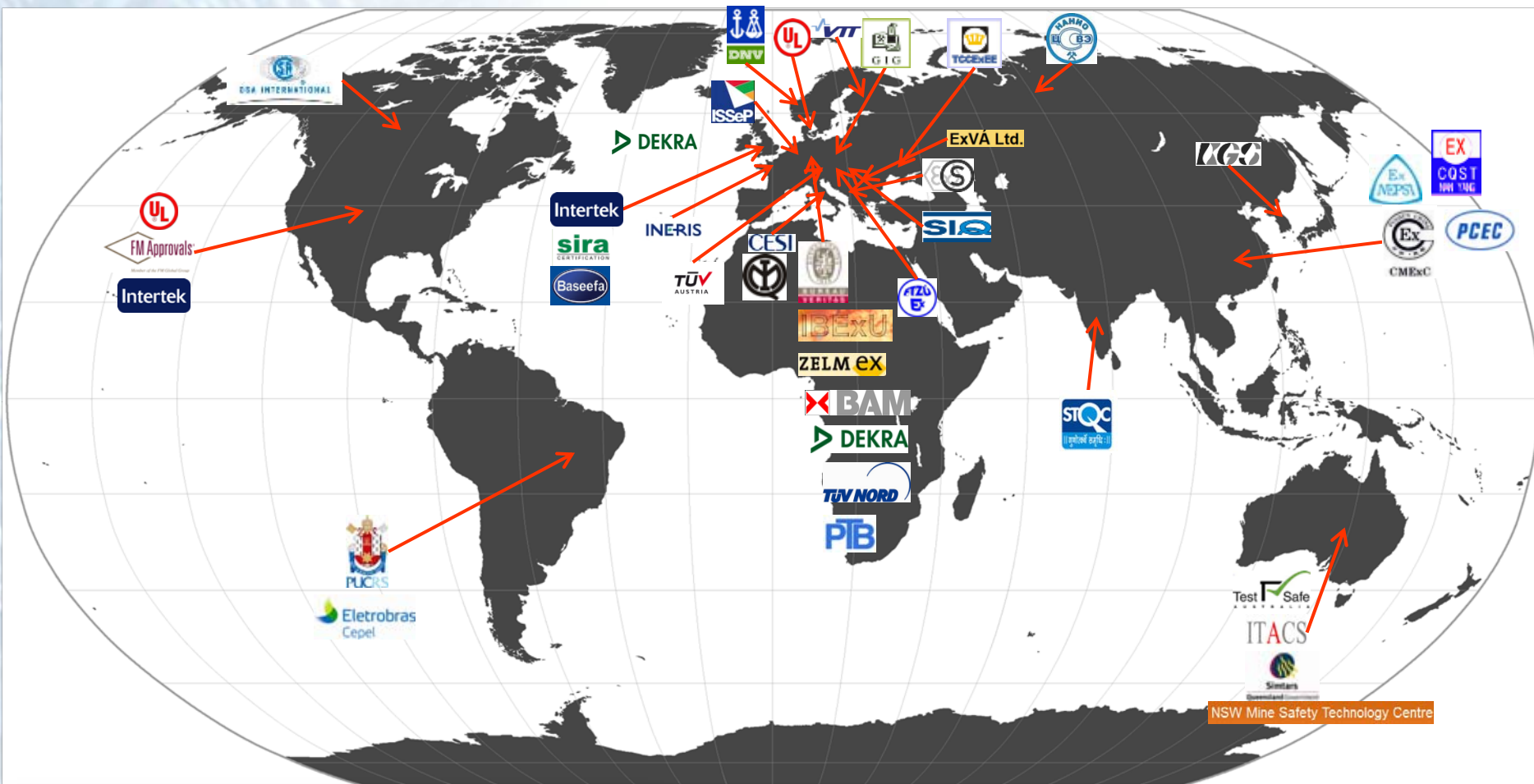
- **Preliminary results of the ongoing pilot program will not be published for a broader community, only for the members of the ExTAG WG 10**
- **The „Ex Proficiency Testing Program“ is a pilot, everything is on an experimental basis, results included**
- **All results are strictly owned by the laboratories, nothing can be published without permission of the laboratories**
- **Differences within the results of the participating laboratories are normal, all other PTPs started in the same way**
- **The ExPTP will help to minimize the differences over the time by communication in between the laboratories**

Status of PTB Ex Proficiency Testing Program

- Number of participating laboratories: 42 (now 43 with QPS)
- Shipping status: Test Round “d”: 38
 Test Round “i” : 37
- All participants have received their test sample
- Uploaded results : Test Round “d”: 26
 Test Round “i” : 13
- PTB Ex PTP Team performs Program of Data Analysis - Phase I
- PTB Ex PTP Team prepares Interim Reports according to Phase I

Participating laboratories

A total of 42 participating laboratories from 24 countries



Participating laboratories

List of participants

Test laboratory	Country	Test laboratory	Country
Baseefa	United Kingdom	KEMA	Netherlands
Bundesanstalt für Materialforschung und -prüfung	Germany	Korea Gas Safety Corporation (KGS)	Korea
Bureau Veritas Consumer Product Services GmbH	Germany	LABELO / PUCRS	Brasil
Central Mining Institute Experimental Mine "BARBARA"	Poland	Mine Safety Technology Centre	Australia
CESI Centro Elettrotecnico Sperimentale Italiano S.p.A.	Italy	National Supervision and Inspection Center for Explosion Protection and Safety Instrumentation (NEPSI)	China
China National Quality Supervision & Test Center for Explosion-Proof and Safety Products für Coal Mine (CMExC)	China	Physikalisch Technische Bundesanstalt (PTB)	Germany
China National Quality Supervision and Test Center for Explosion Protected Electrical Apparatus (CQST)	China	Physical Technical Testing Institute (FTZÚ)	Czech Republic
CSA International	Canada	Supervision & Test Centre of Ex-products of China Petroleum & Chemical Industry (PCEC)	China
DEKRA EXAM GmbH	Germany	Simtars	Australia
Det Norske Veritas Certification AS	Norway	SIQ Ljubljana	Slovenia
DVLA - LABEX (Laboratory of explosion proof test)	Brasil	Sira Test & Certification Ltd	United Kingdom
ELECTRONICS REGIONAL TEST LABORATORY (EAST)	India	Testing Laboratory of ExVÁ Ltd.	Hungary
Ex-Agencija Laboratory for explosion protection ExLAB	Croatia	TestSafe	Australia
FM Approvals, LLC	USA	TL CCVE (NANIO "CCVE")	Russia
IMQ S.p.A.	Italy	TÜV AUSTRIA SERVICES GMBH	Austria
INERIS	France	TÜV NORD CERT GmbH	Germany
Institut für Sicherheitstechnik IBE	Germany	UkrNIIVE, Testing Certification Center of Explosion protected and mining electrical Equipment	Ukraine
International Test and Cerification (ITACS)	Australia	UL Demko	Denmark
Intertek	USA	Underwriters Laboratories Inc.	USA
Intertek Testing & Certification Ltd	United Kingdom	VTT Expert Services Ltd	Finland
ISSEP	Belgium	Zelm Explosionsschutz GmbH	Germany

Short overview

- Comparison quantity: Explosion Pressure (reference pressure)
- Principle: Measuring the explosion pressure after ignition of explosive gas-air mixture in explosion vessels with four configurations
- Scope: 4 configurations, 2 explosive gas-air mixtures, 5 ignitions for each configuration and mixture

Test Round “d” (Flameproof Enclosures)



- Comparison quantity: Number of contacts up to ignition
- Principle: Measuring the number of contacts up to ignition in explosive gas-air mixture with STA
- Scope: 12 circuits, 20 ignitions for each circuit.

Test Round “i” (Intrinsic Safety)



Incoming of results of participants
(Uploading via PTB Ex PTP – Homepage/Procedure Instructions and storage in database)

Incoming check and plausibility control of test records / documents of participants
(possible contact participants by PTB Proficiency Testing Team)

Anonymisation of received data files
(Computer algorithm, decoding only by designated person!)

Anonymous analysis of data according to Methods of Statistical Analysis “d” respectively “i”
(Based on ISO 13528 and ISO / IEC 17043)

Recording of outliers respectively “conspicuous” data / documents and anonymous internal discussion with experts

Elaboration of an individual “Interim Report” for each participant with description of its results

2011-12-31

Program of Data Analysis and improvement loop – Phase II

Analysis of the test methods and processes of each participant on base of results of the interim report

PTB offers individual support for discussion of test results, test setup or data acquisition if requested

Based on the data analysis every participant has the possibility to repeat the tests and to upload the improved results again

Anonymous analysis of data of all participants between all participants according to Methods of Statistical Analysis “d” respectively “i”

Discussion and achieving consensus between all participants of community about evaluation, assigned value, statistical methods and bias

Discussion and achieving consensus between all participants about general procedure relating to performance statistics, consequences, publications, etc.

Final report (pilot phase) and (optionally) communication of results according to “general procedure”, under control of the laboratories

Preparation of the approach for Test Round “d” including the estimation of measurement uncertainty for each laboratory (PTB offers support if requested)

2012-05-31

- **December 2011: end of Phase I**
- **January 2012: start of Phase II (improvement loop)**
- **May 2012: final results to be compiled for the participating laboratories**
- **June 2012: workshop at PTB organized by the Ex PTP team for all participating laboratories (agenda example: how an explosion pressure can be measured, how to improve uncertainty of measurement)**
- **September 2012 (annual meeting of IECEx):**
 - **ExTAG WG 10 meeting: proposing that ExMC may endorse the Ex PTP as mandatory for all ExTLs (via ExTAG), development of an organization and finance model which includes a review of the IECEx practice**