



Certifier experience: Comparison of IECEx to NEC

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Agenda

- Perspective
- IECEx System Overview
- IECEx Equipment Certification
- NEC HazLoc Equipment Certification
- Comparison of IECEx to NEC Systems



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Perspective

- ❖ *OSHA NRTL*
- ❖ *SCC Certification Body*
- ❖ *IECEX ExCB & ExTL*
- ❖ *ATEX Notified body*
- ❖ *Brazilian INMETRO CO*
- ❖ *USCG Accepted Laboratory*
- ❖ *MSHA Part 6 Independent Laboratory*



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IECEX System

- ❖ *US formally joins IECEX in 2001*
- ❖ *1st US ExCB/ExTL approved in 2002*
- ❖ *US elected chair of ExTAG in 2003*
- ❖ *US elected chair of ExMarkCo in 2007*
- ❖ *US elected chair of ExMC in 2008*
- ❖ *2 of top 10 ExCBs consistently from US*



IECEX System

- ❖ *Equipment Scheme*
 - *56 ExCBs, with 3 USA*
- ❖ *Service Facilities Scheme*
 - *14 ExCBs, with 1 in USA*
- ❖ *Personnel Competencies Scheme*
 - *10 ExCBs, with 1 in USA*
- ❖ *Mark Licensing Scheme*
 - *16 ExCBs, with 1 in USA*



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IECEX Equipment Certification

- ❖ *Test Reports (ExTRs)*
 - *Based on IEC or ISO Ex standards, any edition*
 - *Self-declaration regarding OrdLoc requirements*
- ❖ *Quality Assessment Reports (QARs)*
 - *ISO 9001 based*
 - *18-month cycle for assessments*
- ❖ *Certificates of Conformity (CoCs)*
 - *Supported by active ExTRs and CoCs*
 - *Within US, only accepted by USCG*
 - *Outside US, limited direct market acceptance*



IECEX Equipment Certification

Data acceptance options...

- ❖ *Other ExCB test reports, with audit*
 - *Compliance with US National differences required*
 - *Compliance with OrdLoc requirements required*
- ❖ *Witnessed test data*



IECEX Equipment Certification

Diversity of certified equipment...

- ❖ *Active certifications only from early 2000s*
- ❖ *Zone classification system only*
- ❖ *Growing but limited categories of equipment*



IECEX Equipment Certification

Applicable Standards...

- ❖ *IEC 60079 series*
- ❖ *IEC/IEEE 60079-30 series*
- ❖ *ISO 80079 series*
- ❖ *ISO/IEC 80079 series*
- ❖ *Other ISO standards*



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NEC HazLoc Equipment Certification

❖ *Test Reports*

- *Based on US ANSI standards*
- *3rd-party certification regarding OrdLoc requirements*

❖ *Product inspection / audits*

- *Required by federal regulations*
- *No fewer than 4 inspection / visits per year*

❖ *Certificates of Conformity (CoCs)*

- *Supported by active test reports and inspections*
- *Within US, full direct market acceptance*
- *Outside US, broad direct market acceptance*



NEC HazLoc Equipment Certification

Data acceptance options...

- ❖ *Other NRTL test reports, with audit*
- ❖ *Other ExCB test reports, with audit*
- ❖ *Client-generated test data, with audit*
- ❖ *Witnessed test data*



NEC HazLoc Equipment Certification

Diversity of certified equipment...

- ❖ *Active certifications from at least the 1930s*
- ❖ *Division and Zone classification systems*
- ❖ *Many hundreds of equipment categories*



NEC HazLoc Equipment Certification

Applicable Code, standards and regulations...

- ❖ *American Petroleum Institute (API)*
- ❖ *Institute of Electrical and Electronics Engineers (IEEE)*
- ❖ *National Fire Protection Association (NFPA)*
- ❖ *Underwriters Laboratories (UL)*
- ❖ *US Codes of Federal Regulations (CFRs), OSHA, MSHA & USCG*



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Comparison of IECEX to NEC Systems

Certification Attributes	IECEX	NEC
- HazLoc requirements	- 3 rd party certification	- 3 rd -party certification
- OrdLoc requirements	- Self-declaration	- 3 rd -party certification
- Product inspections / audits	- Every 18 months	- 4 times per year
- Area classification systems	- Zone system only	- Division and Zone systems
- Product diversity	- Growing but limited, based on active certs since early 2000s	- Significantly broader, based on active certs since at least 1930s

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Thank you!