



**TESİSLERDE PROSES EMNİYETİ  
SEMPOZYUMU**



# UL SOLUTIONS



**Tehlikeli ortamlarda kullanılan ürünler için gereksinimler –  
ABD & Kanada (UL), ATEX ve IECEx arasındaki temel farklar**

## Konuşmacı

### Hakkında

Emre Yağmurlu UL Solutions'ın EIA\* Departmanı'nda görev yapmaktadır. Türkiye, İtalya ve diğer Akdeniz ülkelerindeki müşterilerin satış sorumlusudur.

İTÜ Metalurji ve Malzeme Mühendisliği Lisans ve Politecnico di Milano yüksek lisans mezunu olup, özellikle Petrol-Doğalgaz sektörü ve Hazardous Locations uygulamaları hakkında geniş bilgi ve tecrübe sahibidir.

\*Energy and Industrial Automation



**Emre Yağmurlu**

Sales Executive

## İçerik

1. UL Solutions hakkında Temel Bilgiler
2. Kuzey Amerika Sertifikaları (UL Sertifikası)
3. ATEX, IECEx sertifikaları ile UL Sertifikası arasındaki farklar
4. Diğer uluslararası sertifika örnekleri
5. UL Solutions araçları

## UL Solutions Hakkında Temel Bilgiler

- UL Solutions ile direkt iletişim olanağı
- Üretim ya da kalite değil, ürün sertifikası
- Sertifika verilecek firmanın kalite süreçlerinden bağımsız, ürün sertifikası
- UL Standards & Engagement, kendi standartlarını yayımlayan bir kuruluştur.
- UL Solutions “Certified Equipment Scheme” altında yer alan bir ExCB'dir.

<https://www.iecex.com/>

- UL Solutions bir NRTL (Nationally Recognized Test Laboratory)'dir.

<https://www.osha.gov/dts/otpc/nrtl/ul.html>



## Certifications in North America

- Identification and Listing are the primary methods identified in U.S. and Canadian Codes required for equipment.
- Acceptance is only done by code authorities at the installation site
- Recognized by OSHA
- Accredited for Product, Process and Service Certification by SCC in Canada.
- Risk of Fire
- Risk of Electric Shock
- Casualty Hazards
- Performance Testing, where applicable
- Environmental Ratings

UL Solutions Follow-Up Services required



## CE ile Kuzey Amerika Sertifikaları Arasındaki Farklar

CE	Kuzey Amerika Sertifikaları
Üçüncü parti tarafından test genellikle zorunlu değil*	Üçüncü parti tarafından test her zaman zorunlu
Periyodik gözetim yok**	Periyodik gözetimler
Avrupa standartları	Amerikan standartları

\* Bazı Hazardous Location sertifikalarında CE belgesi için de üçüncü parti tarafından test zorunludur.

\*\* Bazı Hazardous Location sertifikalarında CE için de zorunlu denetimler vardır.



## U.S. and Canada: options for hazardous locations

### Division system (“NEC 500”)

- Traditional North American system
- Defined in the NEC (NFPA 70) and CEC
- Still predominant in North America

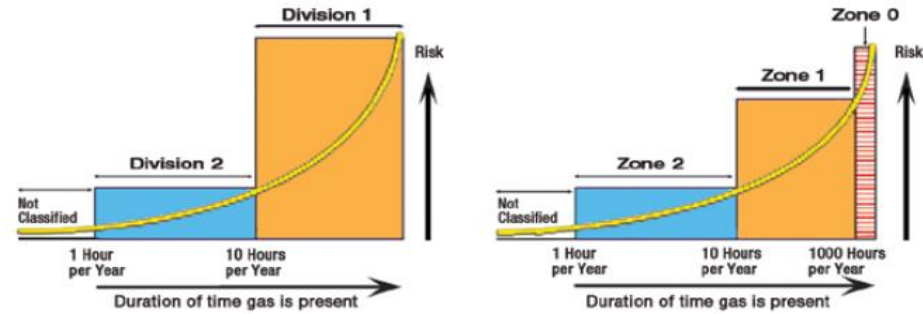
### Zone system (“NEC 505”)

- Based on the harmonized IEC standards
- Introduced in the NEC in 1996 as an alternative
- Required for new installations in gas locations in Canada since 1998

USA and Canada offer certification for both divisions and zones



## Division vs. Zone



**Division 1:** Where ignitable concentrations of flammable gases, vapors or liquids can always exist or some of the time under normal operating conditions.

**Zone 0:** Where ignitable concentrations of flammable gases, vapors or liquids can exist all the time or for long periods under normal operating conditions.

**Zone 1:** Where ignitable concentrations of flammable gases, vapors or liquids can sometimes exist under normal operating conditions.

**Division 2:** Where ignitable concentrations of flammable gases, vapors or liquids are not likely to exist under normal operating conditions

**Zone 2:** Where ignitable concentrations of flammable gases, vapors or liquids are not likely to exist under normal operating conditions



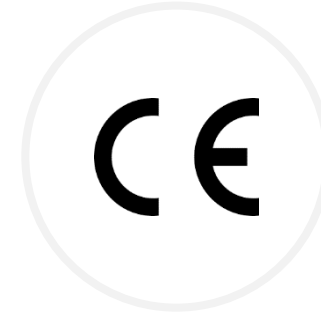
## Division vs. Zone: Gas group comparison (flammable, gases, vapors or liquids)

Division 1 and 2 Class I Group ...	Zone 0, 1 and 2 Group II
A (acetylene)	IIC (acetylene, hydrogen)
B (hydrogen)	IIB + H2 (hydrogen)
C (ethylene)	IIB (ethylene)
D (propane)	IIA (propane)

## EU market: ATEX Directive (2014/34/EU)

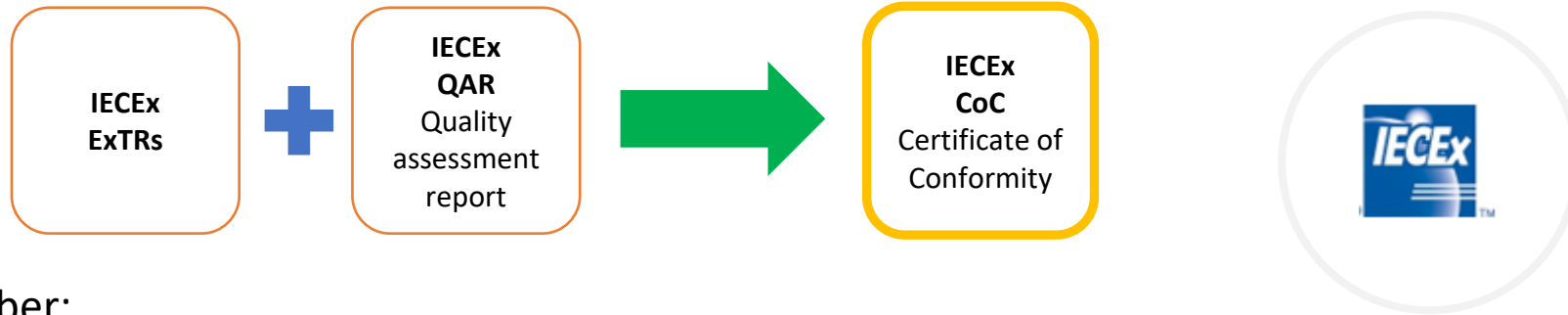
The conformity assessment procedure for ATEX 2014/34/EU is different depending on:

- Electrical products, non-electrical products
- Equipment groups and category



## International Certifications – IECEx System

The conformity assessment procedure does not depend on type of equipment (electrical products, non-electrical products) and does not depend on equipment category!



Remember:

- Voluntary scheme
- Passport to access the global market: Limited direct acceptance of certifications  
Local/national certificates are usually required  
ExTRs base of information/data exchange

## Basis for product compliance

### Major differences between North America and Europe

- Division system/Zone System vs. Zone System only
- Ordinary locations evaluation from NRTL as a pre-requisite vs. manufacturer's responsibility
- Quarterly Surveillance Visit vs. audit

	IECEX	INMETRO	ATEX	UL-Zone	UL-Div.
Quality system audits – 18 months*	Yes	Yes	Yes		
Quarterly (minimum) OrdLoc plus HazLoc				Yes	Yes

- Wiring methods, thread forms, grounding and bonding
- Code authorities determines acceptability of equipment vs. marking only

\*When the location does not have an ISO 9001 certificate, this is 12 months.



## Quintuple marking example



**LISTED**  
E123456

*PROCESS CONTROL EQUIPMENT FOR HAZARDOUS LOCATIONS*

**CLASS I, DIVISION 2, GROUPS B, C AND D, T5**

**CLASS II, DIVISION 2, GROUPS F AND G, T100°C**

**CLASS I, ZONE 1 AEx db ib IIC T5 Gb**

**ZONE 21, AEx tb IIIB T100°C Db**

**Ex db ib IIC T5 Gb**

**Zone 21, Ex tb IIIB T100°C Db**



UL-BR 16.000X



**II 2 G Ex db ib IIC T5 Gb**  
**II 2 D Ex tb IIIB T100°C Db**

DEMKO 16 ATEX 1600X

**Ex db ib IIC T5 Gb**

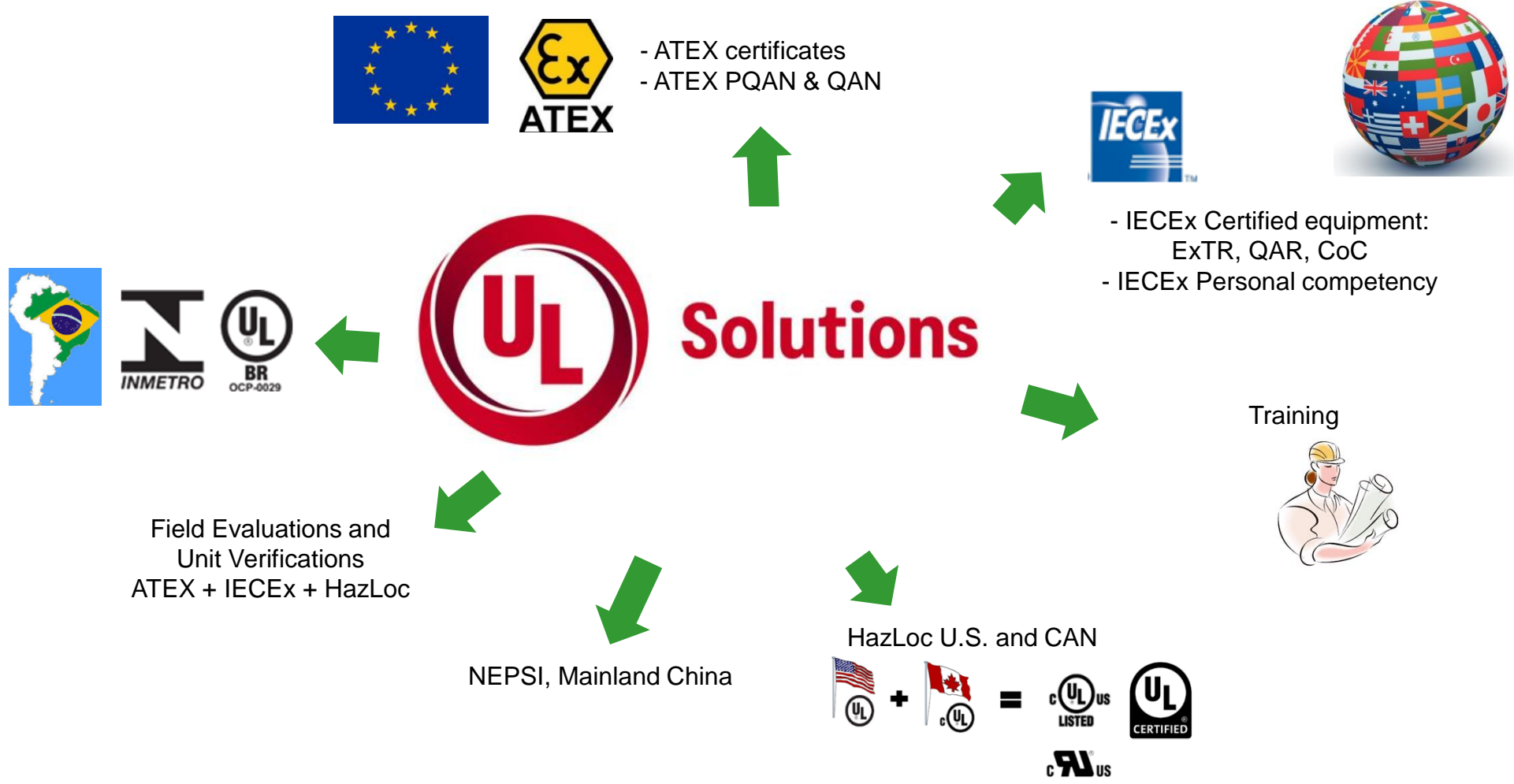
**Ex tb IIIB T100°C Db**

IECEX UL 16.0000X

**ABC Manufacturing Inc.**  
12300 N. East St.  
Chicago, IL 60600  
XPBOX112233  
120/240VAC 5A 50/60 Hz  
 $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$

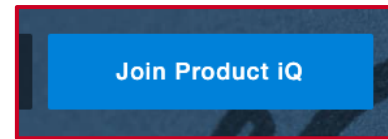
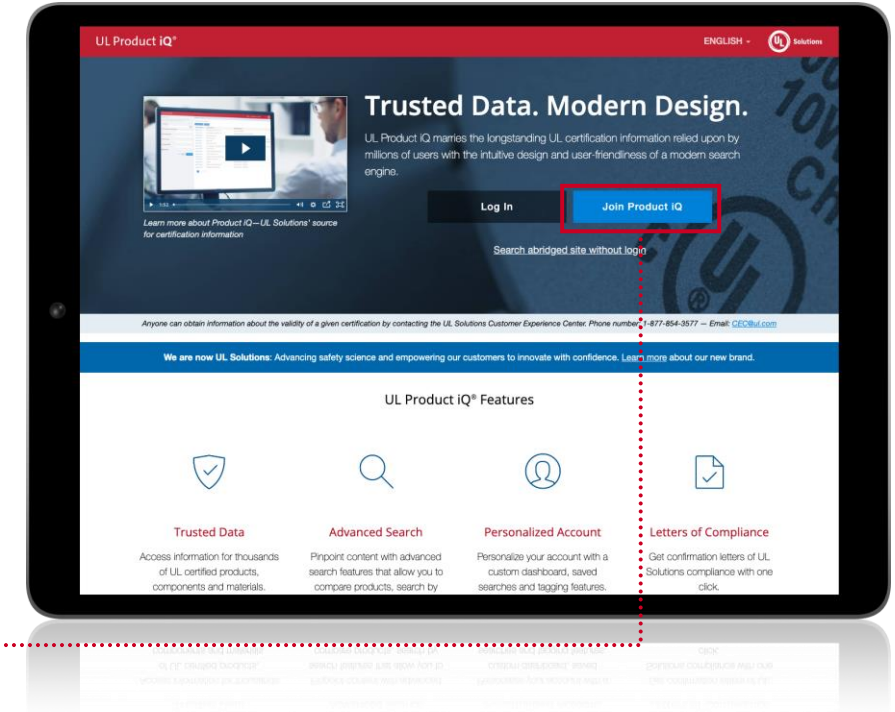


# UL Solutions' value proposition



## UL Product IQ®

- Works best with Chrome – [UL.com/PiQ](https://ul.com/PiQ)
- Requires registration to create a user account
- Basic service – No charge for use
- Paid subscription service provides more features
- Complimentary upgrade for code authorities
- The first month of a premium subscription is complimentary, if anyone is interested in trying it out
- Continuously updated
- Mobile-friendly







# Browse and buy UL Standards <https://www.shopulstandards.com/>

The screenshot shows the top navigation bar of the UL Standards & Engagement website. It includes a search bar, language and currency dropdowns (English, US Dollar), and navigation links for 'Browse & Buy UL Standards', 'UL Resources', 'Other Products', 'Site Info', and 'Request a Quote'. Below the navigation bar is a large banner image of a worker in a green shirt and blue hard hat working on solar panels. Overlaid on the banner is a search input field and a green 'Browse Catalog' button.

## A Globally Influential Standards Development Organization

Distinguished by our independent research and scientific acumen, we've driven cutting-edge science into practical safety guidance utilizing our wide array of global safety science experts to oversee the creation of trusted standards and public outreach programs. Our standards have guided the safety and sustainability of both emerging and legacy products since 1903.

## Featured Standards

### Recently Published

<p>New Edition   February 15, 2024</p> <p><b>UL 2225</b> Cables and Cable-Fittings For Use In Hazardous (Classified) Locations</p> <p><a href="#">View Details →</a></p>	<p>New Edition   February 13, 2024</p> <p><b>UL 1564</b> Standard for Industrial Battery Chargers</p> <p><a href="#">View Details →</a></p>	<p>New Edition   February 9, 2024</p> <p><b>UL 60034-1</b> Standard for Rotating Electrical Machines - Part 1: Rating and Performance</p> <p><a href="#">View Details →</a></p>	<p>New Edition   February 8, 2024</p> <p><b>UL 1069</b> Hospital Signaling and Nurse Call Equipment</p> <p><a href="#">View Details →</a></p>	<p>New Edition   January 31, 2024</p> <p><b>UL 486E</b> Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors</p> <p><a href="#">View Details →</a></p>	<p>New Edition   January 17, 2024</p> <p><b>UL 60034-5</b> Rotating Electrical Machines - Part 5: Degrees of Protection Provided by the Integral Design of Rotating Electrical Machines (IP Code) - Classification</p> <p><a href="#">View Details →</a></p>
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## İletişim Bilgileri



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SEMPOZYUMU



**TEŞEKKÜR EDERİZ.**