

Fuelling safety

IECEX Schemes help reduce risks

Ex or explosive atmospheres are not restricted to oil refineries, offshore oil rigs, gas plants or mines. Many other industries also operate in potentially hazardous environments: sugar refineries, flour mills, grain silos and the paper and textile sectors, to name a few. Ex risks also exist in transportation.

Ex areas near you

Unless you are driving an electric car, you are bound to enter a potentially hazardous area each time you need to put petrol in your car. The most prevalent risks associated with petrol station environment hazards are fires and explosions.

Petrol is highly flammable, and can be very dangerous if proper safety precautions are not followed. There are several strict rules to be observed while refuelling, among them: Don't smoke. Don't leave the engine running.

Touch the car body before refuelling to discharge static electricity. Watch for overflow.

Aircraft refuelling: larger scale, higher risks

Aviation fuel is generally of a higher quality than fuels used in less critical applications, such as heating or road transport, and often contains additives to reduce the risk of icing or explosion due to high temperatures, amongst other properties.

Aviation fuelling has a number of unique characteristics that must be accommodated. When flying, an aircraft can accumulate a charge of static electricity. If this is not dissipated before fuelling, an electric arc can occur which may ignite fuel vapours. To prevent this, aircraft are electrically bonded to the fuelling apparatus before fuelling begins and are not disconnected until fuelling is complete. Some regions require that the aircraft or fuel truck be grounded as well.

Aviation fuel can cause severe environmental damage, and all fuelling vehicles must carry equipment to control fuel spills. In addition, fire extinguishers must be present at any fuelling operation, and airport firefighting forces are specially trained and equipped to handle aviation fuel fires and spills.

Throughout the world, the strictest regulations are issued by airport authorities, airlines and oil companies to ensure that the storage and handling of fuel, the transportation of fuel by a tank truck from the storage location to the aircraft, and the refuelling itself are performed according to the highest level safety.

IECEX solutions

IECEX, the IEC System for Certification to Standards Relating to Equipment for Use in Explosive Atmospheres, has several solutions for manufacturers of equipment



Strict rules also have to be observed at gas stations

used in refuelling operations. The System has put in place a number of Schemes that provide assurance that equipment and systems are manufactured and operated according to the highest International Standards of safety.

Proof of the right level of protection: IECEX Certified Equipment Scheme

From the smallest to the largest piece of equipment used in refuelling operations, all can be tested and certified by IECEX. An IECEX Certificate is like a passport for manufacturers of Ex equipment. It provides clear proof of claimed compliance with International Standards. It certifies that the equipment in question has the right level of protection. It provides assurance that products bearing an IECEX Certificate conform to the International Standards listed on the same Certificate.

Certified professional repair: IECEX Certified Service Facilities Scheme

Because Ex equipment has a much higher capital cost than the same equipment used elsewhere, repairing it is often more cost-effective than replacing it. This Scheme assesses and certifies that organizations and workshops that provide repair and overhaul services to the Ex industry do so respecting the strict requirements of IEC International Standard 60079-19, *Explosive atmospheres - Part 19: Equipment repair, overhaul and reclamation*.



Strict regulations govern the personnel handling the refuelling...

This ensures that unique Ex safety features are not compromised during the repair or overhaul process. The system includes on-site audits prior to issuing the IECEx Certificate and periodic audits to ensure that repair and overhaul processes continue to comply with requirements.

**Competency confirmed:
IECEx Certification of Personnel
Competencies Scheme**

The CoPC (Certificate of Personnel Competence) gives independent proof that the certificate holder has the required qualifications, experience and capability to apply the various Ex related Standards that cover tasks from Area Classification to installation, inspection, maintenance

and repair covering equipment located in hazardous areas. All personnel working in an environment that uses fuel in high quantities qualify for seeking an IECEx CoPC.

To obtain a CoPC, a person submits an application to an approved IECEx CB (Certification Body). Regular re-assessment also ensures that the certified person maintains these competencies. The certificate is personal, non-transmittable and valid across international borders.

In terms of the IECEx CoPC Scheme, competence is defined as “the ability to apply knowledge” rather than simply

assessing knowledge. In this sense the assessments of persons include assessing their ability to perform certain Ex-related tasks.

Along with the other IECEx Certification Schemes, all IECEx CoPC Certificates are issued via the IECEx “On-Line” certificate System enabling full public view on the IECEx website at www.iecex.com

Find out more on the UNECE (UN Economic Commission for Europe) endorsement of IECEx in this issue of *e-tech*.



...and aircraft refuelling operations