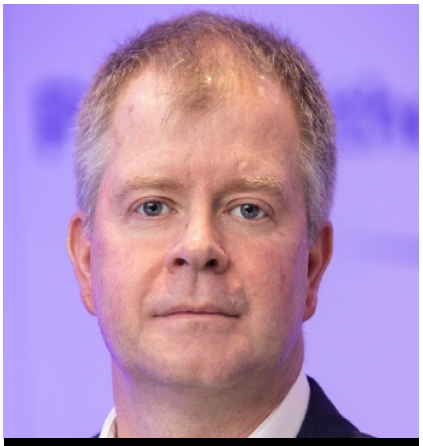

Every two months, CompEx Certification's Technical Director Paul Hague offers his perspective on the latest industry developments, particularly focusing on competency within hazardous areas.

Ensuring personal competency for mechanical (non-electrical) personnel in explosive atmospheres

My previous article examined the competency requirements of roles such as painters, scaffolders, cleaning personnel, etc. It occurred to me that whilst these roles are not mentioned in the standards such as IEC 60079 Parts 14 and 17, what about the vital role personnel play in the design, installation, maintenance, and repair of non-electrical equipment such as pumps, gearboxes, fans, etc.?

Whilst those of us in an EC&I role have the luxury of referring to a standard for guidance, what about those in a non-electrical role?

For non-electrical personnel, it can be argued that the picture has been far less clear. These professionals are responsible for maintaining and inspecting mechanical components – such as rotating equipment, couplings, seals etc. – that, if compromised, can just as easily present ignition risks as faulty electrical equipment. However, until recently, there has been a noticeable lack of technician-focused guidance to support their work in these high-risk environments.

It is important to recognise that formal standards do exist for non-electrical equipment. The internationally recognised ISO/IEC 80079 Parts 36 and 37 provide detailed requirements for the design principles and certification processes that manufacturers must follow when developing mechanical equipment for use in explosive atmospheres. These standards are essential in ensuring that equipment meets strict safety benchmarks at the design and production stages.

However, ISO/IEC 80079 is fundamentally a product and certification standard, designed for manufacturers and equipment certifiers. It ensures equipment is safe when it leaves the factory, but it does not provide the practical, day-to-day guidance needed by technicians working in the field; those responsible for maintaining and inspecting the equipment once it's installed.

This is where a critical gap exists. Whilst the standards Part 14 and 17 provide some useful guidance on aspects such as equipment selection, unlike their EC&I counterparts, mechanical technicians often rely heavily – sometimes solely – on manufacturers' documentation to guide factors associated with design, installation, inspections, and maintenance.

Although manufacturer documentation is essential, its depth and accessibility can vary significantly between equipment types and suppliers. Without standardised inspection frameworks, technicians may face uncertainty in how best to assess equipment integrity, especially when working across different sites or sectors.

The CompEx Non-Electrical Inspection Schedule: Bridging the gap

Recognising the need for clearer, technician-friendly guidance, CompEx introduced a new set of non-electrical inspection tables tailored specifically for mechanical equipment. Created by a pan-industry group of subject matter experts, the schedule of inspection tables are designed to provide structured, consistent criteria for assessing the safety and condition of mechanical equipment operating within explosive atmospheres. They cover critical inspection areas including:

- Verifying the integrity of seals, gaskets, and mechanical enclosures
- Inspecting for corrosion, erosion, or mechanical damage that may compromise safety
- Checking rotating equipment and couplings for excessive wear or potential ignition hazards
- Ensuring mechanical safety devices, such as pressure relief valves and interlocks, function as intended

The inspection schedule does not intend to replace manufacturer information or international standards like ISO/IEC 80079 – they complement them, offering technicians a practical, standardised reference point to guide their day-to-day inspection activities.

Crucially, they bring consistency and clarity to mechanical inspections, reducing the risk of critical faults going unnoticed due to varying practices or incomplete information.

Integration with the revised Ex11 Qualification

The introduction of the schedule of inspection tables forms a core component of the revised CompEx Ex11 qualification, specifically designed for non-electrical personnel working in hazardous environments.

Driven by a collaborative industry and approved training provider working group, the updated Ex11 qualification incorporates both theoretical knowledge and practical assessments directly linked to the inspection tables, ensuring technicians are trained and evaluated on task/job-relevant competencies.

This means mechanical technicians completing the Ex11 qualification gain not only a broader understanding of explosive atmosphere safety but also the specific, hands-on skills required to inspect and maintain mechanical equipment to internationally recognised standards.

For employers, this development enhances confidence in their workforce's capability to uphold site safety and regulatory compliance. For technicians, it provides a clear pathway to formal recognition of their competence, enhancing both personal development and career mobility.

A step forward for industry and individuals

The introduction of the non-electrical inspection schedule and the revised Ex11 qualification reflects a wider industry commitment to raising competency standards across all disciplines working in explosive atmospheres. The benefits are clear:

- Improved Safety: Structured inspections reduce the risk of mechanical failures leading to ignition sources
- Regulatory Alignment: Supports compliance with global standards and industry best practice
- Consistency Across Sites: Promotes uniform inspection standards, regardless of site, sector, or location
- Enhanced Technician Confidence: Provides clear, practical guidance for field-based mechanical inspections
- Career Development: Offers formal recognition of skills, boosting technician mobility and employability

Competency is everyone's responsibility

Explosive atmospheres demand an uncompromising approach to safety, where every detail matters and every technician plays a part. Historically, mechanical technicians have lacked the same level of structured competency guidance as their electrical colleagues – despite the clear risks mechanical equipment can present.

Product standards like ISO/IEC 80079 Parts 36 and 37 remain essential in setting design and certification benchmarks, but maintaining safety throughout an equipment's lifecycle requires competent, well-informed technicians on the ground.

The CompEx non-electrical inspection schedule, now embedded within the revised Ex11 qualification, helps bridge that gap – providing practical, consistent guidance that ensures mechanical technicians play their full role in keeping hazardous areas safe.

In environments where the smallest oversight can have the biggest consequences, investing in personal competency is not optional – it is essential. ■

To download a free copy of the Non-Electrical Inspection Schedule, visit: https://tinyurl.com/y6bk46ff

Paul Hague is the Technical Director for CompEx Certification Limited. With over 30 years of 'Ex' industry experience, Paul has technical responsibility for the CompEx qualifications portfolio, ensuring that they meet international standards and reflect industry best practice. He also has overall responsibility for operations and quality assurance activities.