



Every two months, SGS Baseefa Technical Manager Ron Sinclair MBE gives his perspective on the latest developments in the world of standards.

# IECEX in Edinburgh

**A few years ago, the British National Committee of the IECEX volunteered to host the 2023 annual meetings of IECEX in Edinburgh. So, we met in the third week of September, for a full five days; including the ExTAG (for detailed discussions involving the accepted certification and testing bodies within the scheme) and the ExMC (the formal Management Committee of the IECEX System, with formal voting rights for each national committee).**

Between the two meetings, we held an Industry Symposium, both for IECEX participants and for other engineers with an interest in Ex Protection and, particularly, in the development of hydrogen as both a practical fuel and as a means of storing energy. To those of us with practical experience of Ex testing with hydrogen, and the necessity of wearing ear protectors, it seemed strange that many in this developing industry do not regard hydrogen as explosive.

It is because of a different starting point. Many of us are so conditioned to think always of an explosive atmosphere being the flammable material mixed with air, that we can easily forget that most of those flammable materials do require the oxygen (from air) to explode. Therefore, it is correct that hydrogen, on its own, is not explosive. And safety in the hydrogen industry is fundamentally based on keeping the hydrogen and the oxygen

apart. Ex equipment only becomes necessary when the two cannot be reliably separated.

In the ExTAG meeting, we also discussed the developments, within IECEX, to enable certification of much of the hydrogen fuel train, particularly hydrogen dispensers. Because not all the necessary standards are yet issued by ISO, we have developed an Operational Document (OD), based on much of the draft standardisation work, to fill the gap. A number of IECEX certification bodies have started going down the route of getting assessed for using the OD as an interim, and will quickly convert to the published ISO standards, once available.

The current documents deal with hydrogen under pressure, but a cryo-future, with liquid hydrogen, may become a possibility, certainly when dealing with hydrogen in bulk. I am not sure which would be worse; failure of the cryo-system, or failure of a gas tank at extremely high pressure (and remember that hydrogen can even diffuse through steel at atmospheric pressure!).

I understand that there is some research into the use of chemical storage of the hydrogen, so that it can even be handled in powdered form. There is just the usual problem that any “reversible” process needs an input of energy for both conversions. Just like a pumped storage scheme, or charge/discharge of a battery.

One of the topics exercising ExTAG at the moment is a seeming reluctance of some certificate holders to have their certificates brought up to date to reflect the most recent standards. This is a

particular problem if a manufacturer needs to incorporate a certified component into their final equipment, but the certificate for the component is well out of date. It is then incumbent on the certifier, of the final equipment, to actually assess the component against the differences in the different editions of the standards. Sometimes this can be an easy task, but there are occasions where a change in a test specification has occurred, and it may then be that the older component is not capable of meeting the current requirement.

Because IECEX is a voluntary certification system, there is not the same force of law, as with the ATEX Directive in Europe, to force a manufacturer to act. But it is probably worth reminding manufacturers, particularly of components, that it is a requirement of ISO/IEC 80079-34 that they have a system to keep themselves informed of developments in standards, and to take action when appropriate.

For over ten years, IEC has published a list of technical changes between editions of the standards in the foreword of the new edition. It is not an arduous task to download those lists (free from the IEC web store as part of the standard preview), and form a technical judgment on each change, and how it affects the specific product.

The ExMC meeting is rather more formal than ExTAG, and results of voting are recorded against the country name. We did have a number of votes on the acceptance of documents, or on the decision of a way forward, but I am pleased to say that almost all were unanimous. ■