

# Why Is ATEX Certification Needed In Water Treatment?





**I**t is generally understood that all equipment for use in hazardous locations such as flour mills, coal mines, petrochemical plants and fuel transfer facilities, needs to be “intrinsically safe”. In other words, incapable of igniting an explosive atmosphere. However, some not so obvious hazardous locations include water treatment plants, tunnels and underground passageways or any location where a build-up of naturally occurring flammable material (such as methane or dust) could occur.

Wastewater pumping and treatment facilities, for example, emit flammable gases and vapours. These emissions come from substances that the wastewater could be carrying (e.g. oils, solvents or fuels from accidental spills) and from anaerobic digestion of organic matter (producing methane and hydrogen sulphide). According to NFPA 820 (Standard for Fire Protection in Wastewater Treatment and Collection Facilities) most pumping stations, spaces and buildings that make up a wastewater treatment plant must be considered hazardous locations.

In many of these hazardous locations there is a requirement for condition based monitoring (CBM), for example by monitoring the vibration of rotating machinery to predict failure. Particularly in the water treatment industry, the consequences of an unexpected breakdown can be catastrophic. In the event of pump failure, wastewater can back-up and overflow, resulting in accidental discharge of untreated sewage into water courses (rivers, lakes and oceans). This has led to water treatment companies being fined literally millions, to say nothing of the environmental damage!

The Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) require employers to control the risks to safety from fire, explosions and substances corrosive to metals. This entails compliance with BS EN 1127 (Explosive atmospheres - explosion prevention and protection), which in turn requires that any electrical equipment used is

intrinsically safe and complies with BS EN IEC 60079. Hence any CBM equipment needs to be IECEx/ATEX certified for use in hazardous locations.

### **Affordable intrinsically safe CBM**

Intrinsically safe devices typically cost many times more than their non-intrinsically safe counterparts. This is mainly due to the increased manufacturing costs (e.g. additional safety components and encapsulation) but also due to the high cost of the required testing and certification. Test Products International (TPI) believes it has broken the ATEX cost barrier with the TPI 9080Ex vibration analyser, priced at a very affordable £3,500. IECEx and ATEX certified for use in Zone 1 and with North American approval for Class I, Zone 1, the TPI 9080Ex is certified for use in hazardous locations anywhere in the world.

The TPI 9080Ex is supplied with an industry standard (IEPE) intrinsically safe accelerometer and offers on-meter analysis for the detection of machine faults such as unbalance, misalignment, looseness and bearing wear. The TPI 9080Ex features colour coded alarm levels and zoomable on-screen vibration frequency plots with cursor readout. It can store lists (routes) of machines (up to 1000), each with up to 10 measurement points, all with full vibration waveform and frequency spectrum (FFT) capture.

Routes and readings can be transferred between the TPI 9080Ex and the packaged free, subscription free, PC based trending and reporting software in a variety of different ways. Via the included USB docking cradle, wirelessly via Bluetooth or remotely via a Bluetooth link with a smart phone or tablet, running the free TPI Bridge App. This allows service personnel to receive and return routes and readings, no matter where they are in the world. The PC software, includes automatic email notification of alarms and report generation, allowing you to implement a full CBM solution.

**For more information please contact TPI Europe's head office on +44 1293 530196 or take a look on the website at [www.tpieurope.com](http://www.tpieurope.com) or email [sales@tpieurope.com](mailto:sales@tpieurope.com)**

