How Do You Decide If You Have A Hazardous Location?

It is generally well known that condition-based maintenance (CBM) of rotating equipment (pumps, fans, motors etc.) is the key to avoiding costly downtime. This is particularly the case in hazardous locations where routine or planned periodic maintenance is impractical or undesirable. However, any CBM equipment used in hazardous locations needs to be certified as intrinsically safe. But how do you decide if you have a hazardous location and at what level of hazard? The regulations put the responsibility for deciding on the plant operator and in many cases such as flour mills, petrochemical plants or fuel transfer facilities it can be fairly obvious. However, some less 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 the regulations, most pumping stations, spaces and buildings that make up a wastewater treatment plant must be considered hazardous locations.

But what level of intrinsic safety is required? Deciding the "likelihood" of an explosive atmosphere existing can be tricky to say the least! The simplest solution is to cover all eventualities by going for instruments certified for Zone 0 (hazard exists continuously). Normally, that would be much more expensive. Fortunately, Test Products International (TPI) has achieved a significant cost breakthrough with the very affordable TPI 9085Ex vibration analyser. With on-meter diagnostics and the all-important ability to TREND readings over time, the "go anywhere" TPI 9085Ex has WORLDWIDE certification for Zone 0, meaning it can be used in any atmosphere and anywhere.

The 9085Ex detects unbalance, misalignment and looseness in rotating equipment. It also measures "bearing noise" and displays it in bearing damage units (BDU) roughly equivalent to "percentage bearing wear". In addition, the 9085Ex uniquely incorporates a directly contacting temperature sensor within its vibration probe. This gives a highly accurate, virtually instantaneous, surface temperature reading for the bearing, simultaneously as the vibration reading is taken. With a high BDU reading and high temperature, you know that what you are seeing really is a worn bearing and not some other source of vibration such as pump cavitation.

The compact handheld TPI 9085Ex is extremely affordable and simple to use and should be included as standard in every maintenance tool kit. Using the FREE TPI Bridge App, "routes" and readings can be transferred to and from the 9085Ex anywhere in the world using mobile devices (e.g. smart phone or tablet PC) and then via Bluetooth to and from the 9085Ex. "Routes" are simply lists of machines showing exactly what readings need to be taken and where to take them. The readings are then automatically time and date stamped by the 9085Ex and saved back in the route for automatic transfer to computer-based trending software.

"Trending" is the very essence of condition-based maintenance. By looking at the trend of bearing noise and temperature readings, it is possible to determine well in advance when a bearing will likely need replacing. The TPI 9085Ex comes with powerful, yet simple to use, subscription free trending software, which includes automatic email notification of alarms and report generation, giving you everything you need for a full CBM strategy.

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 or email sales@tpieurope.com