

AN OPPORTUNITY TO VENT

Assentech's MD, Ewart Cox, is hugely passionate about the difference valves can make to the industry.

Ewart Cox's background is in diesel engine design and development, and it was through this that he first developed his "fascination with the functionality of valves".

Assentech, of which he is managing director, follows the API standards – which may not sound like an impressive claim, until you realise how many do not, "which, sadly" he says "is the vast majority. If you buy the cheapest valves available you are categorically not protecting the safety of your workforce.

Only by following the API standards can you make a real difference."

Furthermore, he says, there are only between 20-25 tank breather valve manufacturers worldwide, and of those, a mere three leak test their valves before they leave the factory: "So the first time anyone's made aware of a problem, it's not only too late but there are consequences that range from dangerous to catastrophic."

Insurers are now increasingly concerned with operators not employing best practice for mitigating risk, and leak-tested, API standard

valves fall firmly under this remit. "Valves look low tech" says Cox, "but they're so important. They're a single part of the wider environmental puzzle, but they are a significant part nonetheless." ■



AN ENVIRONMENTAL GAMECHANGER

Assentech has developed the first fully automated mobile vent test bench. This device is state-of-the-art technology that uses AI (artificial intelligence) to profile a vent's function against algorithms that enable it to 'think' and react as it tests.

Traditional manual testing requires a high level of skill and precise hand/eye coordination, and two technicians can produce very different results from testing the same valve. This eliminates that inaccuracy.

"Unnecessary vapour losses and odours can be easily eradicated by using informed procurement of new equipment and the use of best available techniques in maintenance of the ageing plant," says Cox.

"After many years of testing on manual devices

we decided to move towards a high-tech solution. Development of our new device started in 2018 after our old manual unit was stolen from the back of our van. We launched our new range last month and have received a lot of interest."

Assentech can now produce verified test certificates that include the full pressure and flow data profile for both pressure and vacuum ports. This highly accurate information will give the actual leak rates at specific pressure ranges, such as 75 percent and 90 percent of set point, and at the required operating pressure if required. The test results can be instantly uploaded to the Cloud and transferred to a phone or tablet using a QR code.

"We recently used this technology to assist a client in the biogas industry reduce excessive emissions and odours from one of their facilities that was under threat of closure by the Environment Agency and the HSE," says Cox.

"They had purchased low-cost vents that were not leak tight and were leaking huge volumes of biogas that consists of 60 percent methane which is 30 times more damaging to the environment than CO².

"Our data showed that every low-cost vent on their site was leaking a cloud of biogas equivalent to 108 double decker busses over three years, at a loss of £13k in methane. Assentech provided a replacement vent design that reduced losses down to the equivalent of 0.11 double decker bus and £12 over three years.

"The quality vent cost twice the price of the cheap vent but payback was achieved in 14 months and reduced emissions of Global Warming Gas (GWP) from 441 tonnes down to 0.185 tonnes. The EA congratulated us on our work, and said we are stopping thousands of tonnes of damaging greenhouse gasses escaping into our skies." ■



BREATHER VENTS EXPLAINED

Tank breather vents are modular venting devices that gradually open as the pressure increases so determining when the set point has been achieved

is difficult to repeat using hand/eye coordination.

A normal breather vent is specifically sized and calibrated to remain closed except when the vapour space approaches the design pressure limits

through thermal expansion/contraction and pumping operations. Fixed roof atmospheric and low-pressure storage tank sizes vary from 1m³ up to 10,000 m³. Venting flow rates can vary from 5 m³/hr up to 10,000 m³/h at pressures often no greater than a party balloon.

Storage tanks have huge surface areas, so just 20mbarg (the pressure of a party balloon) will generate a lifting force on the roof of a 25m diameter tank of over 9 tonnes. A margin of just 2 or 3 mbarg can determine whether a tank gets damaged or remains intact.

Historically storage tank operators have kept tank vent settings low to ensure the integrity of their storage assets are not compromised. However, over that last 10 years, there has been a rise in optimising tank vent sealing to maintain leak tightness. This has primarily been done in an effort to reduce odours and costly evaporation losses.

In the last five years there has also been a rise in priority being given to environmental factors and compliance with ISO14001. Assentech's device accurately measures the leak rate and adjusted set point of these venting devices.

This requirement has been in international standards since 1966 but has generally been ignored by far too many manufacturers, because prior to the introduction of our device it was very hard to prove otherwise once it had been supplied to the customer.

www.assentech.co.uk ■

