White paper:

Fugitive Emission testing, Methane vs. Helium

Shut-off and Control valves intended for application in volatile air pollutants and hazardous fluids have to be subjected to Fugitive Emission testing.., meticulous testing to verify the tightness of the valve stem seals and body joints.
It is the answer to the desperate desire towards lower fugitive emissions..., however getting your valves approved to international standards is a daunting task...

The common pressure test standards, such as the API 598 and the EN 12266 basically only vary in the classification of allowable leakage. The simplicity and similarities enable valve manufactures to easily qualify products according to many different international standards.
Unfortunately the opposite applies for standardisation on Fugitive Emission testing... Not one of the 8 or 9 different Fugitive Emission standards, currently being used in the industry, can be used unilaterally on all valves.

There are lots of contradictions in 'FE' test standards, leading to different test conditions and criteria. The key variance within the standards is found with the test fluid.., the tracer or test gas.
The American API 622, API 624 and API 641 specify Methane, whereas the European ISO 15848 gives two options, Methane or Helium. There is much to say for both, but;

- The molecule size of Helium is 12x smaller than Methane. This directly leads to differences in the leakage test results.
- Methane is a Hydrocarbon and is therefore considered as a much better simulation of the practice service conditions.
- Methane is flammable and easily gets explosive (LEL/HEL conc. 5-15%), so this requires an ATEX test facility...!
- Helium is inert and is considered safe (minor H&S measures need be taken to prevent the risk of asphyxiation).
- Last but not least, there is absolutely no correlations between the measuring results of Methane or Helium...

Are we heading for one, meaningful solution, one clear standard..? Until that occurs, valve manufacturers, stockists and distributers will have to continue to provide customers with the products they request while wrestling with the costly task of qualifying them to a wide range of standards with varying test conditions.

So, when you are a valve manufacturer, supplying valves on the global market space, what standard do you choose..?

Can we work together towards an unilateral standard, in the benefit of our environment and the price we have to pay for it?

Is Fugitive Emission testing a challenge for you and you need help..?

Get in touch with Ventil

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