With the United States Environmental Protection Agency (EPA) estimating 60% of all fugitive emissions are attributed to valves, emphasis on the improvement of low emission control products has become a primary focus. The EPA is using their enforcement power to negotiate consent decrees in both HPI and CPI facilities to reduce fugitive emissions. Over 85% of US refiners are now operating under consent decree requirements and chemical plants are seeing increased activity by the EPA as well. Recent consent decrees require emission limits for valves and packing to remain below 100 ppm for five years. Both HPI and CPI companies are evaluating the performance of technologies available to meet the current and future requirements.

The terms we must all become very familiar with are “Certified Low-Leaking Valves” and “Certified Low-Leaking Valve Packing Technology” as defined by the EPA in current consent decrees. These definitions not only define performance parameters but, require a written guarantee be provided by the valve manufacturers and packing manufacturers.

Can your valve designs and packing technology meet these EPA consent requirements?

“Certified Low-Leaking Valve Packing Technology” shall mean valve packing technology for which a manufacturer has issued either: (i) a written guarantee that the valve packing technology will not leak above 100 ppm for five years; or (ii) a written guarantee, certification or equivalent documentation that the valve packing technology has been tested pursuant to generally-accepted good engineering practices and has been found to be leaking at no greater than 100 ppm.

Many test protocols exist designed to measure the performance of valves and packing products. The two most commonly used protocols are API standards and ISO 15848-1. The API standards utilize methane as the media and Method 21 to measure emissions while the ISO test typically uses helium as the media with vacuum as the leak detection method.

For many users in the United States, API 622 2nd Edition has become the new standard for measuring emission performance for valve packing. Since the EPA is recognizing test results performed using Method 21; API 622 2nd Edition is a logical choice. This test is a performance test and allows users to review the detailed performance results for leakage. Using this criteria users can decide for themselves what leakage safety factor to apply for their selection criteria to seal the thousands of valves they have in their plants at under 100PPM. For instance, a packing that requires gland tightening to seal and averages 65PPM leakage may not be the best choice when compared to a packing that requires no gland adjustment and seals at 20PPM. In addition, the API 622 standard requires corrosion performance testing. The corrosion testing examines the amount of galvanic corrosion that occurs between the packing and valve stem as this is often a source of premature failure. For identifying low leaking valves, the API 624 valve type test standard should soon be published. API 624 will likely require the use of API 622 packing and tested with the maximum allowable leakage of 100ppm without a packing adjustment.

Valve manufacturers will need to evaluate the performance of their existing valve designs and packing technology in response to these EPA mandates and anticipate API 624 becoming a requirement for valve approvals. All types of valves including on/off, control, MOV’s and AOVs are impacted by these low emission mandates. Valve manufacturers will need to determine if this will be a standard offering or a specialized area. Manufacturing locations, logistics, market focus and positioning will all become factors in how manufacturers proceed to meet this new requirement. Valve manufacturers will be shifting their product offering to “Certified Low-Leaking Technology” to position themselves for this opportunity.

Users under consent decrees are requiring written warranties for five years at less than 100ppm from both packing and valve manufacturers. Additionally users are reviewing their current specifications and becoming more proactive to minimize future supply disruption. The cost of switching can be minimal for the companies that take a measured approach to this industry dynamic. The industry trend is clear and there will winners and losers in filling this new low emission category.

Leak prevention, not detection

Meet today’s low leakage regulatory requirements with Chesterton® 1622 low emission valve packing. 1622 is an easy-to-install, single spindle block valve packing designed to reduce fugitive emissions to below 100 ppm.

- Certified Low Leaking Valve Packing Technology
- Independently emissions tested to API 622 and Chevron standards
- Fire safe, passed API 607 Fire Test

Achieve your low emissions goals—choose Chesterton.

For more information go to www.chesterton.com/1622

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About the Author

Mr. Boyson is responsible for Chesterton’s valve sealing business and has over 15 years experience working with numerous end-users, OEMs and valve repair shops to assist them in their sealing efforts. He has been directing Chesterton’s efforts to meet the stringent sealing requirements that are facing the industry. He is responsible for the development of new valve packing products and programs to meet these challenges. He travels extensively around the globe to work with a variety of industries with a focus on refinery, petrochemical and power markets. He has published and presented technical papers. He is an active participant on multiple standards and a member of the Fluid Sealing Association.